

The Amphenol RF logo is located in the top right corner. It features the word "Amphenol" in white, followed by a registered trademark symbol (®), and the letters "RF" in a bold, yellow font.

Amphenol® RF

A decorative graphic consisting of a grid of small yellow dots, located on the left side of the page.

Semi-Rigid Cable Assembly Capabilities

Custom bent solutions for high-frequency,
high-reliability applications

ABOUT AMPHENOL RF

Amphenol RF, part of Amphenol Corporation, is a leading manufacturer of radio frequency connectors, coaxial adapters and RF cable assemblies.

As a leader in design and manufacturing of RF interconnect products, our global team of engineers is able to develop a wide range of solutions, including custom products that meet the challenges of design-specific constraints.

GLOBAL PRESENCE



With a global presence, Amphenol RF has experienced engineers and production capabilities in multiple regions across the globe. Our experienced cross-functional teams oversee the entire process from the initial design through delivery, and beyond.

Amphenol RF has a global footprint of operations in North America, Europe and Asia.

SEMI-RIGID CABLE ASSEMBLIES

Semi-rigid cable assemblies are engineered for applications requiring precise electrical performance and mechanically stable signal routing. Constructed with a solid metallic outer conductor, controlled dielectric and center conductor, these assemblies maintain fixed geometry after forming to support repeatable performance in space-constrained RF and microwave systems.

Unlike flexible cable solutions, semi-rigid constructions are designed to hold their shape once bent, enabling consistent routing paths and reliable placement in dense packaging environments. Their rigid structure helps minimize dimensional variation that can affect electrical behavior, making them well suited for high-frequency applications where repeatability and signal integrity are critical.

FEATURES AND BENEFITS



Controlled electrical performance:

Precision cable geometry supports consistent characteristic impedance and repeatable electrical performance across the specified operating range.



Repeatable routing in constrained environments:

Assemblies can be formed to defined bend geometries for accurate routing through compact modules and densely populated systems.



Robust mechanical construction:

The solid outer conductor holds the intended shape after forming, helping preserve routing accuracy and electrical repeatability.



High-frequency signal integrity:

High shielding effectiveness, controlled impedance and stable construction help preserve signal fidelity in demanding RF and microwave applications.

CABLE TYPES

Semi-rigid cables are specialized radio frequency (RF) coaxial cables designed to offer minimal loss, exceptional EMI shielding and ultra high-frequency performance. They feature a solid center conductor, a dielectric core and a continuous solid metal outer jacket rather than braided mesh which is commonly used in other cable types.

Cable types include:

Max Frequency

0.047-inch (1.19 mm)	67 GHz +
0.085-inch (2.2 mm)	67 GHz
0.141-inch (3.6 mm)	34 GHz
0.250-inch (6.35 mm)	18 GHz

Note: Amphenol RF can manufacture semi-rigid cable assemblies using a broad range of cable diameters, constructions and materials from multiple cable manufacturers. Frequency performance depends on the cable construction, connector interface, assembly geometry and application requirements. Our engineers can recommend the appropriate cable and connector combination for your design.

CONNECTOR TYPES

1.85 MM



DC - 67 GHz

2.4 MM



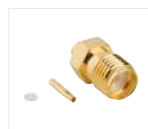
DC - 50 GHz

2.92 MM



DC - 40 GHz

3.5 MM



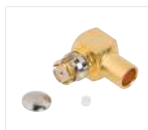
DC - 34 GHz

SMA



DC - 26.5 +

SMP



DC - 40 GHz

SMPM



DC - 65 GHz

SEMI-RIGID CABLE ASSEMBLIES

TEST CAPABILITIES



Passive Intermodulation (PIM)



VSWR



Shielding Effectiveness



Insertion Loss



Dielectric Withstanding Voltage (Hi-pot)



Power Handling Capabilities



Continuity, Open and Short Testing



Cable Pull Force/Connector Retention

MARKETS AND APPLICATIONS

- Test and measurement
- Microwave instrumentation
- Aerospace and defense
- Radar systems
- Telecommunications infrastructure
- Phased-array antenna systems
- Laboratory environments
- Medical equipment
- Industrial RF systems
- Satellite and space

HOW TO CHOOSE THE RIGHT ASSEMBLY

Decision Criteria:

- Frequency requirement
- Allowable insertion loss
- Routing complexity
- Available installation space
- Environmental conditions
- Connector interface compatibility



Our global team of dedicated engineers can help you determine the best solution for your next design with customizable options to meet your design-specific requirements.

QUOTATION AND PROTOTYPING

Every custom semi-rigid cable assembly begins with a collaborative engineering review to ensure the solution meets your electrical, mechanical and environmental requirements. Provide your connector interfaces, cable type, frequency range, assembly dimensions, bend requirements and applicable drawings or specifications. Our engineering team evaluates the design for manufacturability and recommends an efficient solution based on your performance objectives.

Once the design is finalized, a detailed quotation outlines the recommended configuration, pricing and lead time. For new or complex applications, prototype assemblies can be produced for fit, form and functional evaluation before full production. This process enables early design refinements to reduce development risk, shorten time to market and help ensure performance. Following prototype approval, production can transition to volume manufacturing with consistent quality standards and process controls.



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Learn More

about our Semi-Rigid
Cable Assemblies

