



M-FLEX™

Low Cost
FLEXIBLE MICROWAVE CABLE



MICRO-COAX®
Leading the way in transmission line solutions.

Introduction

M-FLEX™ from Micro-Coax offers an excellent choice for Microwave signal transmission. Employing our high-frequency microwave cable technology, Micro-Coax has designed **M-FLEX** from “the GHz down” rather than “the MHz up”.

This precision approach results in unsurpassed improvements in shielding, stability, durability and lower cost compared to similar products. **M-FLEX** is constructed from an improved solid PTFE

dielectric core underneath a precision wound layer of metalized tape for nearly ideal microwave shielding. Strength and protection are then added via a round wire braid and FEP outer jacket. The result is a cable with true microwave performance and excellent mechanical characteristics. **M-FLEX** is easy to use since it strips with standard tools and accepts standard solder-on connectors.

For more than 40 years, Micro-Coax has developed innovative improvements to products such as **M-FLEX**. Designers throughout the world rely upon us for the very best Microwave and RF transmission line products. We’ve built our reputation on delivering reliable, high-performance, cost-effective solutions to the most challenging cable configuration problems. Our products span markets from ultra-high reliable satellite cable assemblies to high-volume precision telecommunications cable assemblies.

Our 90,000-sq. ft. facility in Pottstown, PA, was custom built to Micro-Coax specifications and provides the most advanced research, manufacturing and control capabilities. Many of the materials used to manufacture our products are also designed and built in this facility, yielding unprecedented efficiencies in cost and time to market.

Additionally, our facility in the United Kingdom offers 12,000-sq. ft. of state-of-the-art manufacturing and distribution capabilities.



M-FLEX™ Features and Benefits

High Performance

- Helical shield for improved loss and phase stability.
- Same size as semi-rigid to optimize assembly loss and VSWR.
- Isolation greater than 90 dB to minimize cross talk and maximize system performance.

Easy to Use

- Fully flexible for ease of installation.
- Use standard machines for cutting and stripping, no added investment in time or equipment.
- Designed for standard solder-on connectors, which are readily available and easy to use.

Availability

- Stock to satisfy immediate needs.
- Packaged on spools in lengths of 50 to 1000 ft. to meet a wide variety of volume requirements.
- Metric lengths available for added flexibility.
- Low-smoke, zero-halogen options to meet specific requirements.
- Pre-assembled with connectors upon request for added convenience.



HFE 100D

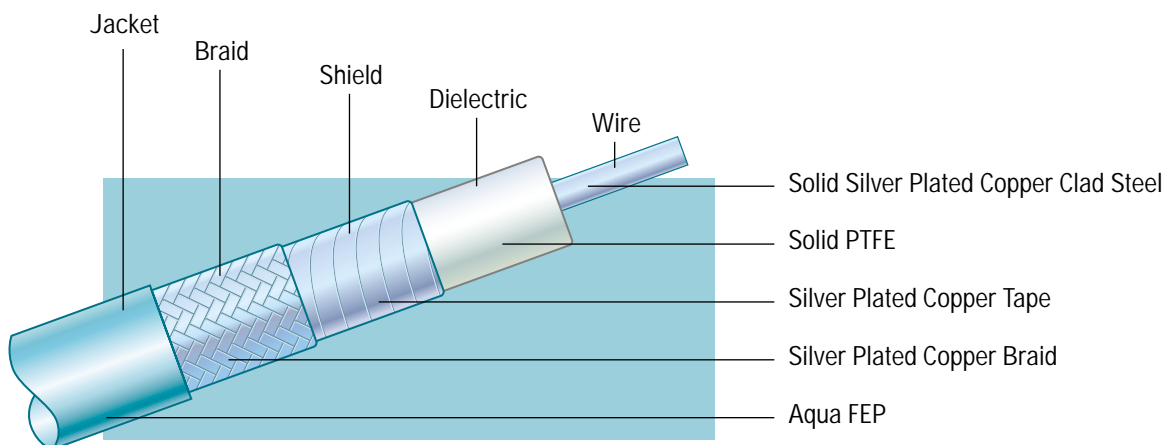
MECHANICAL CHARACTERISTICS

| | |
|--------------------------------------|--------------|
| Jacket Diameter, Inch (mm) | 0.100 (2.54) |
| Outer Shield Diameter, Inch (mm) | 0.084 (2.13) |
| Dielectric Diameter, Inch (mm) | 0.066 (1.68) |
| Center Conductor Diameter, Inch (mm) | 0.020 (0.51) |
| Minimum Bend Radius, Inch (mm) | 0.250 (6.35) |
| Weight, Pounds/100 ft. (grams/meter) | 1.30 (19.39) |
| Temperature Range, Degrees Celsius | -65 to +125 |

ELECTRICAL CHARACTERISTICS

| | |
|---------------------------------------|-------------|
| Impedance, Ohms | 50+/-1 |
| Capacitance, pF/ft (pF/meter) maximum | 29.3 (96.1) |
| Velocity of Propagation, % | 70% |
| Shielding Effectiveness, dB @ 1 GHz | >90 |
| Maximum Voltage, VRMS | 2000 |
| Signal Delay, nsec/ft (nsec/meter) | 1.45 (4.76) |
| Maximum Frequency, GHz | 18 |
| Insertion Loss | See Graph |
| Power Handling | See Graph |

MATERIALS





HFE 160D

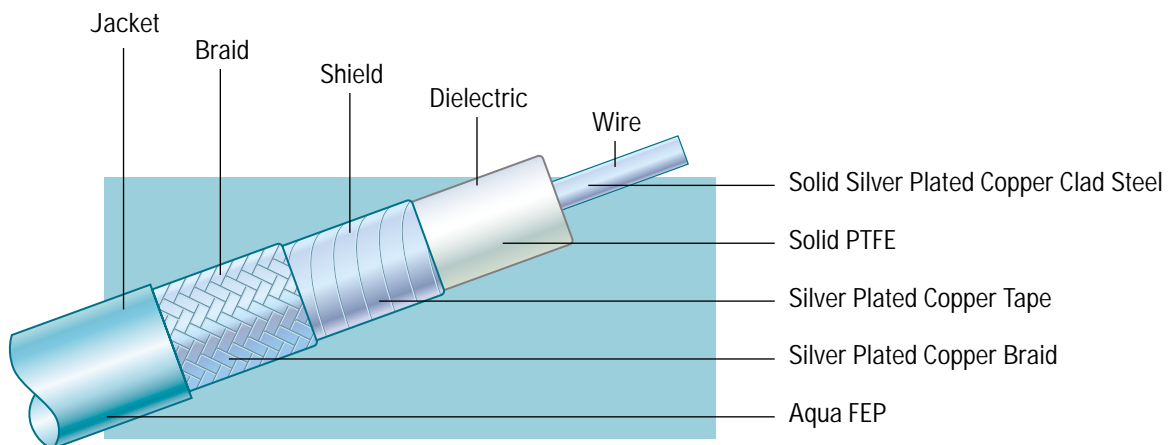
MECHANICAL CHARACTERISTICS

| | |
|--------------------------------------|---------------|
| Jacket Diameter, Inch (mm) | 0.162 (4.12) |
| Outer Shield Diameter, Inch (mm) | 0.140 (3.56) |
| Dielectric Diameter, Inch (mm) | 0.120 (3.05) |
| Center Conductor Diameter, Inch (mm) | 0.036 (0.91) |
| Minimum Bend Radius, Inch (mm) | 0.500 (12.70) |
| Weight, Pounds/100 ft. (grams/meter) | 2.90 (43.25) |
| Temperature Range, Degrees Celsius | -65 to +125 |

ELECTRICAL CHARACTERISTICS

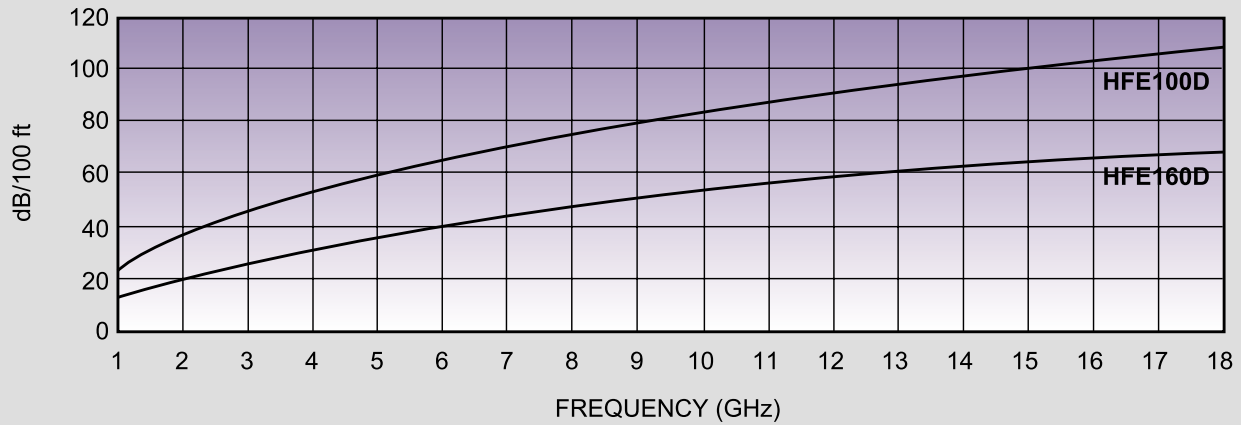
| | |
|---------------------------------------|-------------|
| Impedance, Ohms | 50+/-1 |
| Capacitance, pF/ft (pF/meter) maximum | 29.3 (96.1) |
| Velocity of Propagation, % | 70% |
| Shielding Effectiveness, dB @ 1 GHz | >90 |
| Maximum Voltage, VRMS | 2000 |
| Signal Delay, nsec/ft (nsec/meter) | 1.45 (4.76) |
| Maximum Frequency, GHz | 18 |
| Insertion Loss | See Graph |
| Power Handling | See Graph |

MATERIALS

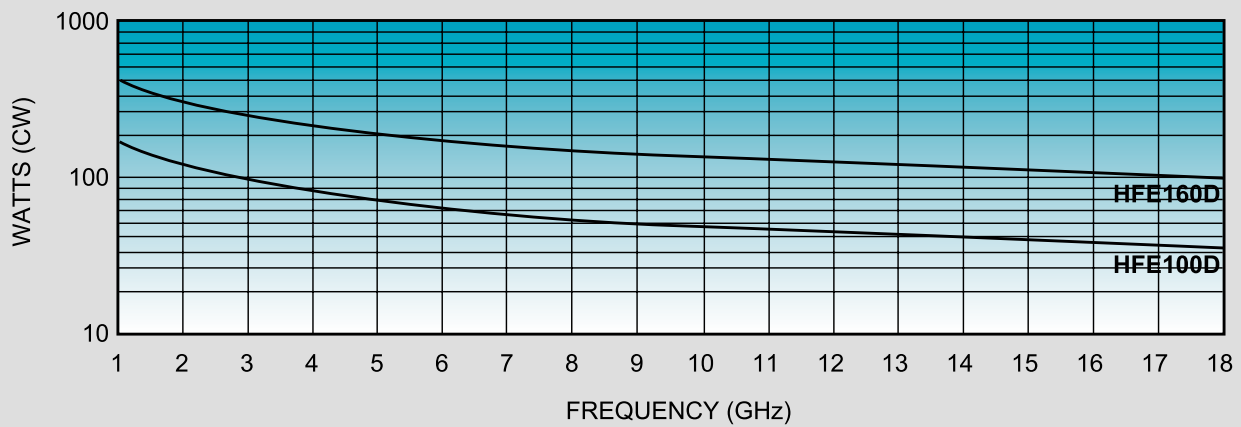


Electrical Characteristics

INSERTION LOSS



POWER HANDLING



UTiFLEX® Flexible Microwave Coaxial Cable. Superior performance to 50 GHz.

The UTiFLEX® family of microwave cables is available in a wide variety of styles, from low loss and ultra-low-loss, to high-flex-life, high-power, high-isolation, and phase-stable cables for vector signal analysis. Each one delivers performance comparable to its most expensive competitors, but costs far less.

All UTiFLEX® assemblies have extremely low loss, low VSWR (typically less than 1.25:1 to 40 GHz), and the ability to operate at temperatures from -150° C to +165° C. They are available with many types of armor, in virtually any length and connector style.

UTiFLEX® Ultralight cable assemblies are optimized for spaceflight applications. They feature DuPont's® ARACON® ultra-thin fiber as the shielding braid making them 25% lighter than silver-plated copper wire, with strength five times greater than steel. Insertion loss is as low as 0.2dB/ft at 18 GHz. In addition, the UTiFLEX® family includes miniature cables that are perfect for applications in the tight confines of PCS and other space-critical systems. They are high-performance alternatives to RG-type flexible and semi-rigid cables.



Semi-Rigid Microwave Cables. Lowest loss and total shielding.

MICRO-COAX semi-rigid cables lead the industry in reducing loss, and provide unequaled VSWR performance. They eliminate radiation leakage and are extremely easy to work with. Our semi-rigid cables are an excellent choice in any application, inside and outside the enclosure.

MICRO-COAX semi-rigid cables are

available in general purpose types, and many models are MIL-C-17 QPL approved. Standard outer diameters range from 0.008 in. to 0.390 in. Special models are available for phase-stable, low or high impedance, spline, high-temperature, triaxial, and cryogenic feed and superconductive applications.

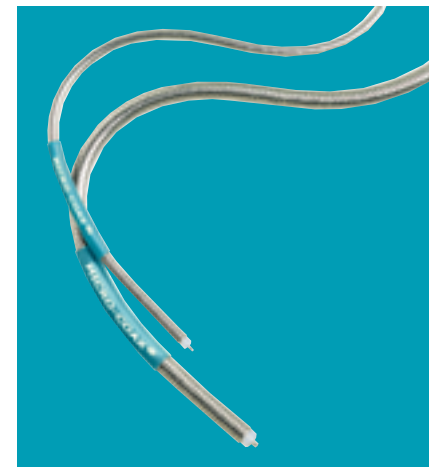


UTiFORM An Alternative to Semi-Rigid and Flexible Cables

The UTiFORM family of tin-dipped microwave cables, economical alternatives to semi-rigid and flexible cables. Featuring excellent attenuation and VSWR, UTiFORM cables can be used in a variety of commercial and military applications, including satellite and space flight.

UTiFORM cables have a higher temperature rating than semi-rigid cables and an equivalent bend radius. They are also extremely easy to use, as they accept standard semi-rigid connectors, and can be cut and stripped with standard

semi-rigid machines, and require no tooling. Because the UTiFORM cables are 100% shielded, they have excellent electrical characteristics. Impedance is 50 Ohms (over a wide DC-95 GHz frequency range). Capacitance is either 27 pf/ft or 29 pf/ft, depending on the cable. Signal delay is either 1.45 ns/ft or 1.32 ns/ft, depending on the cable. Completely hand-formable, the UTiFORM cables don't require complicated bend specifications and can be reformed with no damage. They have bend radius as tight as .100."



Custom Delay Lines. Signal-processing solutions for every application.

Whether you're building radar systems, cellular base stations, or sophisticated test set-ups, MICRO-COAX delay lines offer an unbeatable combination of high performance,

low cost, and quick delivery. Our application engineers will work with you to custom configure a delay line that satisfies your unique electrical and packaging requirements.

