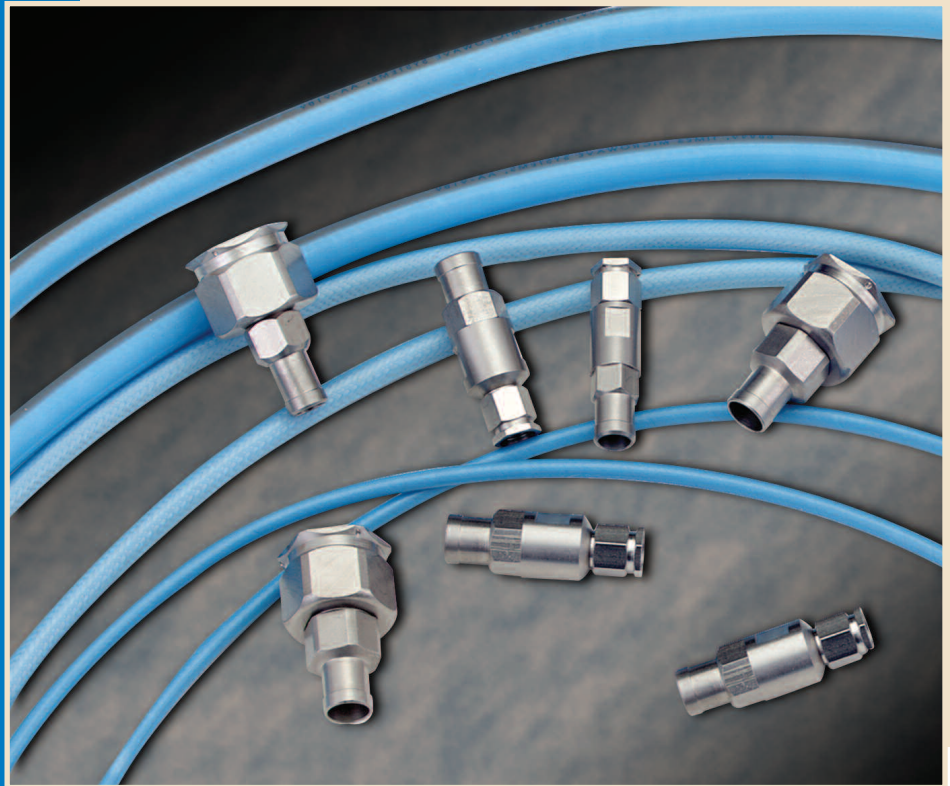


*DC-18 GHz Ultra Low Loss  
Bulk Coaxial Cable and  
Connectors for Self Assembly.*

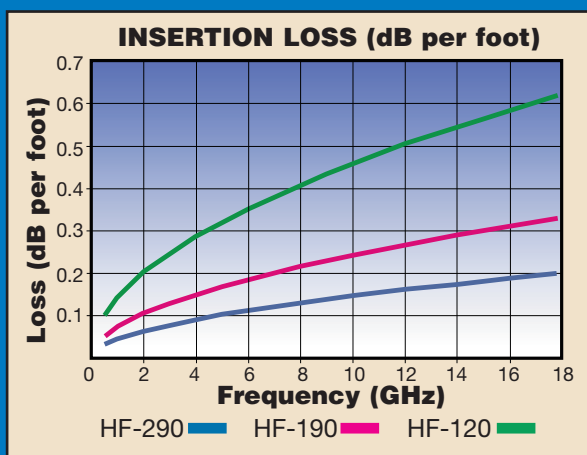


Bulk HELI-FOIL™ ultra low loss, flexible Microwave Coaxial Cable and a full range of passivated stainless steel connectors are now available for self assembly. Covering the DC-18 GHz frequency, Heli-Foil cable comes in three different diameters, with options of stranded center conductors (for dynamic applications) and solid center conductors (for static applications). All sizes provide state of the art lowest insertion loss and excellent phase stability.

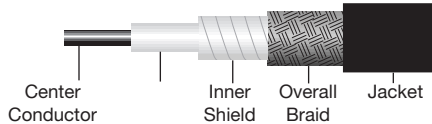
HELI-FOIL assemblies are used for general applications in both field and laboratory conditions. They are ideally suited for high ambient temperature environments, such as communication systems' internal interconnects.

#### Features & Benefits:

- DC-18 GHz Do It Yourself Cable Assemblies
- Lowest Insertion Loss Available, DC-18GHz
- Ultra Stable Insertion Loss, Phase and VSWR with Flexing
- Excellent Phase Tracking Performance with Wide Temperature (-55°C to +150°C)
- Extremely Flexible, Low Minimum Bend Radius
- Superior Shielding Effectiveness (>100 dB)



# HELI-FOIL Specifications:



## Construction

**Center Conductor:** Silver-Plated Copper

**Dielectric:** Low Density PTFE

**Inner Shield:** Helical Silver-Plated Copper Tape

**Overall Braid:** Silver-plated Copper Braid

**Jacket:** Blue Teflon® FEP

|                                                                                      | HS-120                  | HS-120S*            | HF-190              | HF-190S*            | HF-290              | HF-290S*            |
|--------------------------------------------------------------------------------------|-------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Physical Specifications</b> (*-stranded)                                          |                         |                     |                     |                     |                     |                     |
| Overall Diameter: in (mm)                                                            | 0.120 (3.05)            | 0.120 (3.05)        | 0.192 (4.88)        | 0.192 (4.88)        | 0.301 (7.65)        | 0.301 (7.65)        |
| Bend Radius: in (mm)                                                                 | 0.625 (15.9)            | 0.625 (15.9)        | 1.000 (25.4)        | 1.000 (25.4)        | 1.500 (38.1)        | 1.500 (38.1)        |
| Weight: lbs/ft (Kg/m)                                                                | 0.017 (0.025)           | 0.017 (0.025)       | 0.040 (0.060)       | 0.039 (0.058)       | 0.092 (0.137)       | 0.090 (0.134)       |
| <b>Environmental Specifications</b>                                                  |                         |                     |                     |                     |                     |                     |
| Operating Temp. Range                                                                | -67°/+302°F -55°/+150°C |                     |                     |                     |                     |                     |
| <b>Electrical Specifications</b>                                                     |                         |                     |                     |                     |                     |                     |
| Cutoff Frequency (GHz)                                                               | 58                      |                     | 31                  |                     |                     | 19                  |
| Velocity of Propagation                                                              | 83%                     |                     |                     |                     |                     |                     |
| Dielectric Constant                                                                  | 1.45                    |                     |                     |                     |                     |                     |
| Time Delay: nS/ft (nS/m)                                                             | 1.22 (4.02)             |                     |                     |                     |                     |                     |
| Capacitance: pF/ft (pF/m)                                                            | 24.5 (80.3)             |                     |                     |                     |                     |                     |
| Impedance (nominal)                                                                  | 50 ohms                 |                     |                     |                     |                     |                     |
| Shielding Effectiveness                                                              | >90 dB                  |                     |                     |                     |                     |                     |
| <b>Attenuation (+25°C) &amp; Power Handling (+40°C Ambient; Sea Level; VSWR 1:1)</b> |                         |                     |                     |                     |                     |                     |
|                                                                                      | HS-120                  | HS-120S*            | HF-190              | HF-190S*            | HF-290              | HF-290S*            |
| Frequency/Size                                                                       | dB/100ft dB/100m kW     | dB/100ft dB/100m kW | dB/100ft dB/100m kW | dB/100ft dB/100m kW | dB/100ft dB/100m kW | dB/100ft dB/100m kW |
| 100 MHz                                                                              | 4.3 14.1 1.2            | 4.8 15.7 1.1        | 2.3 7.6 2.8         | 2.5 8.4 2.5         | 1.4 4.6 5.6         | 1.5 5.1 5.1         |
| 400 MHz                                                                              | 8.7 28.4 0.6            | 9.6 31.5 0.5        | 4.6 15.2 1.4        | 5.1 16.8 1.3        | 2.8 9.2 2.8         | 3.1 10.2 2.5        |
| 1000 MHz                                                                             | 13.8 45.1 0.4           | 15.3 50.2 0.3       | 7.4 24.3 0.9        | 8.1 26.7 0.8        | 4.5 14.7 1.7        | 5.0 16.3 1.6        |
| 3000 MHz                                                                             | 24.0 78.7 0.2           | 26.7 87.5 0.2       | 13.0 42.6 0.5       | 14.3 46.9 0.4       | 8.0 26.1 1.0        | 8.8 28.9 0.9        |
| 8000 MHz                                                                             | 39.6 129.8 0.1          | 44.0 144.2 0.1      | 21.6 70.9 0.3       | 23.7 77.9 0.3       | 13.4 44.0 0.6       | 14.8 48.5 0.5       |
| 10000 MHz                                                                            | 44.4 145.6 0.1          | 49.3 161.7 0.1      | 24.3 79.7 0.3       | 26.7 87.6 0.2       | 15.1 49.6 0.5       | 16.7 54.7 0.5       |
| 12000 MHz                                                                            | 48.7 159.9 0.1          | 54.1 177.5 0.1      | 26.8 87.8 0.2       | 29.4 96.4 0.2       | 16.7 54.8 0.5       | 18.4 60.4 0.4       |
| 13500 MHz                                                                            | 51.8 170.0 0.1          | 57.5 188.7 0.1      | 28.5 93.5 0.2       | 31.3 102.6 0.2      | 17.8 58.5 0.4       | 19.6 64.4 0.4       |
| 18000 MHz                                                                            | 60.0 196.9 0.1          | 67.0 219.8 0.1      | 33.2 109.0 0.2      | 36.4 119.5 0.2      | 20.0 68.6 0.4       | 23.0 75.4 0.3       |
| Attenuation at Frequency $(A=K1 \sqrt{F_{\text{mhz}}} + K2 F_{\text{mhz}})$          |                         |                     |                     |                     |                     |                     |
| K1                                                                                   | 0.430142                | 0.479448            | 0.229587            | 0.253447            | 0.131900            | 0.153308            |
| K2                                                                                   | 0.000134                | 0.000134            | 0.000134            | 0.000134            | 0.000134            | 0.000134            |
| <b>Connector Selection Table</b>                                                     |                         |                     |                     |                     |                     |                     |
| Cable                                                                                | SMA Male                | SMA Male 90°        | N Male              | N Male 90°          | TNC Male            | TNC Male 90°        |
| HF-120                                                                               | HC-120-SM               | HC-120-SMRA         | HC-120-NM           | HC-120-NMRA         | HC-120-TM           | HC-120-TMRA         |
| HF-120S                                                                              | HC-120S-SM              | HC-120S-SMRA        | HC-120S-NM          | HC-120S-NMRA        | HC-120S-TM          | HC-120S-TMRA        |
| HF-190                                                                               | HC-190-SM               | HC-190-SMRA         | HC-190-NM           | HC-190-NMRA         | HC-190-TM           | HC-190-TMRA         |
| HF-190S                                                                              | HC-190S-SM              | HC-190S-SMRA        | HC-190S-NM          | HC-190S-NMRA        | HC-190S-TM          | HC-190S-TMRA        |
| HF-290                                                                               | HC-290-SM               | HC-290-SMRA         | HC-290-NM           | HC-290-NMRA         | HC-290-TM           | HC-290-TMRA         |
| HF-290S                                                                              | HC-290S-SM              | HC-290S-SMRA        | HC-290S-NM          | HC-290S-NMRA        | HC-290S-TM          | HC-290S-TMRA        |

Consult Times Microwave Systems for other connector options not listed above.



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