ArcTite®

Ultra-low profile bends

- Ultra-low profile height of 0.54 inch (13.7 mm)
- IP67 waterproof rating
- Replaces higher cost, lower performance right angle solutions
- Retains performance in bent condition
- Ideal for high density packaging
- Available in 0.086 and 0.141 cable sizes
- DC-40 GHz

ArcTite® series cable assemblies provide ultra-low profile bends without the need for supplemental strain relief boots. Dynawave’s innovative connector designs conform to the MIL-STD-348 interface specification and utilize a 360° internal solder termination for high reliability and enhanced shielding effectiveness.

These assemblies are ideal for high density, internal module connections and provide a cost effective, higher performance alternative to right angle connectors. ArcTite® assemblies replace standard 0.086 and 0.141 custom semi-rigid cables eliminating the need for complex, pre-defined bends.

ArcTite® assemblies are available in standard lengths with SMA, SSMA, SMP, and 2.92 mm connectors, ready for quick delivery. Hybrid assemblies with traditional MCX or SMP right angle connectors on one end are also available to make PCB terminations.
All specifications are subject to change.

<table>
<thead>
<tr>
<th>General Specifications</th>
<th>ArcTite 086</th>
<th>ArcTite 141</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (maximum)</td>
<td>40 GHz</td>
<td>26.5 GHz</td>
</tr>
<tr>
<td>Impedance</td>
<td>50 Ohms</td>
<td>50 Ohms</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-65°C to +125°C</td>
<td>-65°C to +125°C</td>
</tr>
<tr>
<td>Cable Attenuation (maximum)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 GHz</td>
<td>0.232 dB/ft</td>
<td>0.128 dB/ft</td>
</tr>
<tr>
<td>3 GHz</td>
<td>0.418 dB/ft</td>
<td>0.238 dB/ft</td>
</tr>
<tr>
<td>6 GHz</td>
<td>0.615 dB/ft</td>
<td>0.360 dB/ft</td>
</tr>
<tr>
<td>12 GHz</td>
<td>0.916 dB/ft</td>
<td>0.558 dB/ft</td>
</tr>
<tr>
<td>18 GHz</td>
<td>1.170 dB/ft</td>
<td>0.728 dB/ft</td>
</tr>
<tr>
<td>26.5 GHz</td>
<td>1.459 dB/m</td>
<td>0.934 dB/m</td>
</tr>
<tr>
<td>32 GHz</td>
<td>1.661 dB/m</td>
<td>—</td>
</tr>
<tr>
<td>40 GHz</td>
<td>1.913 dB/m</td>
<td>—</td>
</tr>
</tbody>
</table>

Insertion Loss
Refer to product data sheet or website for insertion loss by specific cable assembly length

ShieldingEffectiveness
-90 dB

Material and Finish
Cable Jacket: Fluoroplastic, type IX (per ASTM D2116) or type X (per ASTM D3159)
Connector Housing: Passivated stainless steel (per ASTM-A-582, type 303)
Connector Dielectric: PTFE (per ASTM-D-1710-02) or composite polystyrene
Connector Center Contacts: BeCu, gold plated (per ASTM-B-488, type 1)
Gaskets/O-Rings: Silicone rubber (per ZZ-R-765)

Insertion Loss
Refer to product data sheet or website for insertion loss by specific cable assembly length

Shielding Effectiveness
-90 dB

Minimum Bend Radius
0.13 inch (3.18 mm) 0.25 inch (6.35 mm)

Outer Cable Diameter
0.105 inch (2.67 mm) 0.160 inch (4.06 mm)

Connector Retention
15 lbs (6.80 kg) 25 lbs (11.34 kg)

Thermal Shock
MIL-STD-202, method 107, condition B-3

Mechanical Shock
MIL-STD-202, method 213, condition F

Sinusoidal Vibration*
MIL-STD-202, method 104, condition G

Random Vibration*
MIL-STD-202, method 214, condition K

Waterproof Rating*
IP67 (ATW versions only)

Insertion Loss
Refer to product data sheet or website for insertion loss by specific cable assembly length

Shielding Effectiveness
-90 dB

Material and Finish
Cable Jacket: Fluoroplastic, type IX (per ASTM D2116) or type X (per ASTM D3159)
Connector Housing: Passivated stainless steel (per ASTM-A-582, type 303)
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Connector Center Contacts: BeCu, gold plated (per ASTM-B-488, type 1)
Gaskets/O-Rings: Silicone rubber (per ZZ-R-765)

Ordering Information
ArcTite® assemblies are available with two basic cable types, 0.086 and 0.141, and with connector options that include SMA, SSMA, SMP, and 2.92 mm. These assemblies are available in various standard lengths represented by the XXX.X designation of the part number and listed by cable type in the standard length table.

Standard Lengths and Increments

<table>
<thead>
<tr>
<th>Series</th>
<th>Standard Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>ArcTite 086</td>
<td>2.5 inch (64 mm) to 6.5 inch (165 mm), in increments of 0.5 inch (13 mm)</td>
</tr>
<tr>
<td></td>
<td>7.0 inch (178 mm) to 18 inch (457 mm), in increments of 1.0 inch (25 mm)</td>
</tr>
<tr>
<td>ArcTite 141</td>
<td>4.0 inch (102 mm) to 6.5 inch (165 mm), in increments of 0.5 inch (13 mm)</td>
</tr>
<tr>
<td></td>
<td>7.0 inch (178 mm) to 18 inch (457 mm), in increments of 1.0 inch (25 mm)</td>
</tr>
</tbody>
</table>

RoHS
All assemblies listed are RoHS Compliant

All specifications are subject to change.

Part Numbering System
ATXX-98X-98X-XXX.X

- ATXX: Cable Assembly Length (inches):
  Example: 6.5 inches = 066.5
- 98X: Connector 2 Configuration:
  B = Straight (M)  A = Straight (F)  C = Bulkhead (F)
  Connector 2 Series:
  94 = 2.02 mm Plug  99 = SMA Jack
  98 = SMA Plug  92 = SSMA Plug  20 = SMP Jack
- Connector 1 Configuration:
  B = Straight (M)  A = Straight (F)  C = Bulkhead (F)
  Connector 1 Series:
  94 = 2.92 mm Plug  99 = SMA Jack  98 = SMA Plug
  92 = SSMA Plug  20 = SMP Jack
- Cable Type:
  86 = 0.086 cable (0.105 inch outer dia.)
  41 = 0.141 cable (0.160 inch outer dia.)
- Environmental Options:
  AT = Standard configuration, no seal
  ATW = Waterproof IP67

RoHS
All assemblies listed are RoHS Compliant

All specifications are subject to change.
## Connector Options

### ArcTite 086 | SMA Straight Plug

<table>
<thead>
<tr>
<th>DC-26.5 GHz</th>
<th>VSWR (maximum)</th>
<th>PN Code</th>
<th>18 GHz</th>
<th>26.5 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>98B</td>
<td>1.30</td>
<td>1.35</td>
</tr>
</tbody>
</table>

### ArcTite 086 | SMA Bulkhead Jack

<table>
<thead>
<tr>
<th>DC-26.5 GHz</th>
<th>VSWR (maximum)</th>
<th>PN Code</th>
<th>18 GHz</th>
<th>26.5 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>99C</td>
<td>1.30</td>
<td>1.35</td>
</tr>
</tbody>
</table>

### ArcTite 086 | 2.92 mm Straight Plug

<table>
<thead>
<tr>
<th>DC-40 GHz</th>
<th>VSWR (maximum)</th>
<th>PN Code</th>
<th>18 GHz</th>
<th>26.5 GHz</th>
<th>40 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>94B</td>
<td>1.20</td>
<td>1.25</td>
<td>1.30</td>
</tr>
</tbody>
</table>

### ArcTite 086 | SSMA Straight Plug

<table>
<thead>
<tr>
<th>DC-38 GHz</th>
<th>VSWR (maximum)</th>
<th>PN Code</th>
<th>18 GHz</th>
<th>26.5 GHz</th>
<th>38 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>92B</td>
<td>1.30</td>
<td>1.40</td>
<td>1.55</td>
</tr>
</tbody>
</table>

### ArcTite 086 | SMP Straight Jack

<table>
<thead>
<tr>
<th>DC-40GHz</th>
<th>VSWR (maximum)</th>
<th>PN Code</th>
<th>18 GHz</th>
<th>26.5 GHz</th>
<th>40 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>20A</td>
<td>1.45</td>
<td>1.50</td>
<td>1.70</td>
</tr>
</tbody>
</table>

### ArcTite 141 | SMA Straight Plug

<table>
<thead>
<tr>
<th>DC-26.5 GHz</th>
<th>VSWR (maximum)</th>
<th>PN Code</th>
<th>18 GHz</th>
<th>26.5 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>99C</td>
<td>1.30</td>
<td>1.35</td>
</tr>
</tbody>
</table>

### ArcTite 141 | SMA Bulkhead Jack

<table>
<thead>
<tr>
<th>DC-26.5 GHz</th>
<th>VSWR (maximum)</th>
<th>PN Code</th>
<th>18 GHz</th>
<th>26.5 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>99C</td>
<td>1.30</td>
<td>1.35</td>
</tr>
</tbody>
</table>
Hybrid Assemblies

Hybrid assemblies provide an ideal solution for applications that require a low profile ArcTite® cable bend on one side, and use of a standard right angle MCX or SMP terminating to a PCB or other point within a module.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT86-98B-H15P-XXX.X</td>
<td>ArcTite 086 SMA plug to MCX right angle plug</td>
</tr>
<tr>
<td>AT86-98B-H15B-XXX.X</td>
<td>ArcTite 086 SMA plug to MCX straight plug</td>
</tr>
<tr>
<td>AT86-98B-H20P-XXX.X</td>
<td>ArcTite 086 SMA plug to SMP right angle jack</td>
</tr>
<tr>
<td>AT86-98B-H85C-XXX.X</td>
<td>ArcTite 086 SMA plug to TNC bulkhead jack</td>
</tr>
<tr>
<td>AT86-94B-H20P-XXX.X</td>
<td>ArcTite 086 2.92 mm plug to SMP right angle jack</td>
</tr>
<tr>
<td>AT86-99C-H15P-XXX.X</td>
<td>ArcTite 086 SMA bulkhead jack to MCX right angle plug</td>
</tr>
<tr>
<td>AT86-99C-H15B-XXX.X</td>
<td>ArcTite 086 SMA bulkhead jack to MCX straight plug</td>
</tr>
<tr>
<td>AT86-99C-H20P-XXX.X</td>
<td>ArcTite 086 SMA bulkhead jack to SMP right angle jack</td>
</tr>
<tr>
<td>AT86-99C-H30B-XXX.X</td>
<td>ArcTite 086 SMA bulkhead jack to SMPM jack</td>
</tr>
<tr>
<td>AT86-20A-H20P-XXX.X</td>
<td>ArcTite 086 SMP jack to SMP right angle jack</td>
</tr>
</tbody>
</table>

Example | AT86-99C-H15P-XXX.X

![Diagram showing standard strain relief and low profile ArcTite® bend]

Additional Hybrid Connector Options

The following connector types are available for use in ArcTite® hybrid assemblies, utilizing traditional strain relief designs. Contact Dynawave to select from our extensive product offering for your specific connector configuration.

<table>
<thead>
<tr>
<th>ArcTite 086</th>
<th>MMCX</th>
<th>MCX</th>
<th>SMP</th>
<th>SMPM</th>
<th>SSMA</th>
<th>SMA</th>
<th>BMAM</th>
<th>BMA</th>
<th>2.92 mm</th>
<th>N</th>
<th>TNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ArcTite 141</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
ArcTite® assemblies are designed to allow multiple bends without significant degradation of performance. The performance data below shows typical VSWR and Loss for each cable size before and after bending. ArcTite® assemblies are rated for a minimum of 100 bends.

**Performance Data**

ArcTite® assemblies are designed to allow multiple bends without significant degradation of performance. The performance data below shows typical VSWR and Loss for each cable size before and after bending. ArcTite® assemblies are rated for a minimum of 100 bends.

**Legend**

Blue solid line = straight condition
Red dash line = bent condition

**Typical VSWR:**

- AT86-98B-98B-006.0
- AT41-98B-98B-006.0
- AT86-94B-94B-006.0

**Typical Loss:**

- AT86-98B-98B-006.0
- AT41-98B-98B-006.0
- AT86-94B-94B-006.0

**Average Power:**

- Arctite 086/141

Sea level, 25°C, no mismatch
**ArcTite® Application Information**

**Minimum Bend Capabilities**
ArcTite® assemblies allow up to 100x 90° bends in any direction at a specified minimum bend radius. The minimum bend radius is defined in the figures below for each cable size.

Do not overstress the cable by using less than the recommended minimum bend radius. Best practice is to preform the bends prior to installation and avoid sharp kinks along the cable bend.

**Cable Markers**
Fixed cable markers can be specified for custom ArcTite® assemblies but must be located at a minimum distance back from the connector (as shown below) to ensure that there is no interference or restriction in the minimum bend radius.

**Recommended Mating Torque**
Recommended mating torque for SMA stainless steel connectors is 7-10 in-lbs (0.8–1.13 NM). ArcTite® SMA connectors are designed without coupling nut snap rings to minimize torque transfer and eliminate the need for anti-torque hex features that add length to the connector body. After hand mating, the cable can easily be positioned as desired prior to final interface torque.

**RF Leakage**
Cable assembly cross-talk and RF leakage are an important performance considerations. ArcTite® assemblies utilize 360° solder termination in the connector (versus mechanical clamping of the braid) and a double shield cable construction to ensure consistent RF shielding effectiveness of -90 dB minimum.

**Installation Considerations for Vibration Environments**
Applications that experience vibration require proper tie-down installation of the cable assemblies. It is recommended that the ArcTite® assemblies be tied-down no more than 2 inches (51 mm) from the back end of the connector. This will prevent work hardening of the connector/cable attachment over prolonged exposure to vibration and will ensure proper service life in the application.
ArcTite® Application Information

Direct Solder to PCB Stripline
ArcTite® assemblies can be custom ordered as single-ended pigtails with one end trimmed to specification. Unlike competitive products using a stainless steel outer braid, ArcTite® cable braid is solderable allowing direct termination to stripline.

Jumper Cables
ArcTite® assemblies provide an excellent, low profile solution for jumper cables between ports or components. ArcTite 086 assemblies are available in standard lengths as short as 2.5 inches (64 mm) for high density applications such as switch matrices or other similar multi-port devices.

Rotating Flange Solution
ArcTite 086 can be utilized with our unique rotating flange connector design that allows the cable to be oriented in the most natural position across a 360° arc to minimize stress on the connector/cable junction. The rotating flange connector can be designed to mate with a hermetic seal pin (as shown) or to an SMP, SMPM shroud.

Waterproof Rating
Part numbers beginning with ATW meet the waterproof rating for IP67 (submersion at depth of at least one meter for 30 minutes). These assemblies employ a minimally longer connector body with a silicone o-ring seal.
Visit our website [www.dynawave.com](http://www.dynawave.com) to see our other innovative cable assembly solutions.

Visit our website and experience easy to use tools to design, specify, and quote the best assembly for your application.

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