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Minibend® Now RoHS Compliant
by Astrolab

minibend®, the patented, triple-shielded, true flexible coaxial cable assembly available only from Astrolab, has evolved since its introduction in 1996. Now, minibend is the most ROHS compliant cable assembly on the market. Minibend cable assemblies are now available for frequencies up to 65 GHz and are available with SMA, SSMA, 2.9mm, 2.4mm, 1.85mm, SMP, SMPM and BMA connectors. The patented, unique minibend connector design eliminates the need for solder, crimp ferrules and end sleeves. This allows the cable to be bent very close to the connector, resulting in a low cost, low profile, true flexible coaxial cable assembly that eliminates the need for custom-formed semi-rigid cables and costly right angle connectors.

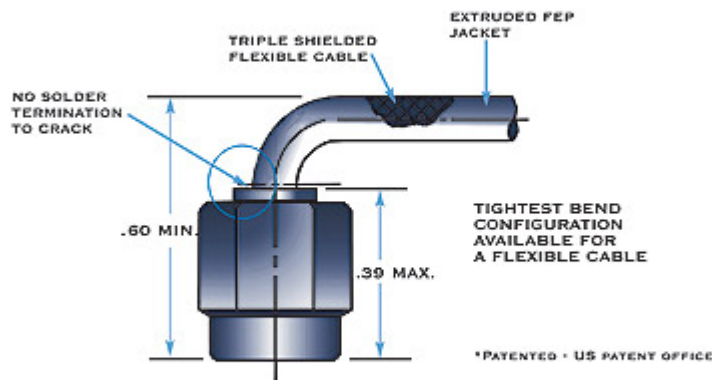


Figure 1

The minibend family of cable assemblies offers superior RoHS compliance over our competitors. Astrolab has reviewed the RoHS and WEEE directives and found that our minibend family of products conforms to the goals of these documents. There are no measurable quantities of cadmium or mercury within the components of the minibend assemblies. Additionally, our material finishing processes are completely free of the use of hexavalent chromium in any of its forms. PBB and PBDE flame retardants are not present in our cable and insulation materials. With regard to lead, our minibend family is stated as '99.9% lead free' and by this we mean that there is less than 0.10% by weight of lead in the cable assembly. Lead is part of the solder alloy used to connect the connector contact to the inner conductor of the coax cable. Lead is also a homogeneous component of the beryllium copper alloy that the contacts are made of and may be present in minute quantities in other materials. Lead has been found to be a leading inhibitor of tin whisker

growth in solder joints. Astrolab has reviewed the lead-free solders available and feels that none of the current products will inhibit tin whisker growth or offer joint reliability to the same level as our existing solder alloy. Astrolab is continuing to perform feasibility and performance studies on the lead-free solders in the market- place for our minibend products and continues to lead the microwave component industry toward full compliance with RoHS and WEEE.

Over 1.5 million minibend cable assemblies are currently in use for commercial, military and space applications. All minibend cable assemblies are fully tested over their full operating frequency.

Minibend replaces small, custom semi-rigid cable assemblies with standard flexible cable assemblies, eliminating the need for predefined custom lengths and bend configurations. Minibend exhibits comparable insertion loss and power handling to .086 semi-rigid cable. For applications that require lower insertion loss, consider the larger diameter minibend L or the mini141®, which has a microporous dielectric. Mini141 offers superior electrical performance compared to .141 semi-rigid cables. Consider microbend® as a superior alternative for .047 semi-rigid cable assemblies. All three cables are triple-shielded for high isolation and are extruded with an FEP jacket for abrasion resistance and electrical insulation. The outer conductor is a flatware, silver-plated copper braid that renders 99% coverage. A 100% helical wrap of aluminum-polyimide adds additional support and shielding. The outer stainless steel braid adds overall mechanical strength for increased durability.



Figure 2

Connectors are normally terminated to flexible cable using crimp, clamp or solder methods. These methods add overall length to the cable-connector junction and, in designs where space is at a premium, may require the system designer to select more

costly right angle connectors. The patented minibend connector design is the shortest, lowest profile flexible connector available. This connector utilizes a patented clamp method to directly terminate the cable outer conductor to the connector body. No solder is used at the point of termination, so you can bend the cable very close to the connector without fear of degradation. The minibend cable assembly can be readily formed into any shape desired without special tools or predetermined bends. All that the system designer needs to specify is the overall length.

The original minibend was designed to meet the requirements of a particular customer who needed a cable assembly with similar electrical performance to .086 semi-rigid cables with SMA Plug connectors. The customer needed cables that could be densely packaged in his system without breaking off at the cable/connector junction or causing flakes of metal to accumulate inside his system. The solder joints of the semi-rigid cable assemblies he was using would crack under thermal and mechanical stress when the cable was bent close to the joint. He had tried 'conformable' style cable assemblies, which are essentially flexible cable assemblies with a copper outer braid that is tin dipped to mimic the solid outer conductor of semi-rigid cable. These assemblies lose up to 30% of mechanical integrity after they are re-soldered and could only be formed a few times until the outer braid started to decompose. The minibend design solved his problem, since the patented clamp design does not use solder either at the cable/connector junction or on the braids.

Following the release of the minibend as a standard product, customers asked to have the minibend assembly technique applied to other cable sizes. As a result, Astrolab developed the mini141 for RG 402/.141 semi-rigid applications and microbend for replacement for .047 semi-rigid applications.

Mini141 evolved from a customer requirement for a replacement for .141 semi-rigid cable assemblies. It uses a similar diameter cable with a low loss microporous dielectric; however, it offers superior electrical performance as compared to standard .141 semi-rigid cables. Mini141 is currently offered with SMA, SSMA, BMA, SMP, SMK (2.9mm), TNC and N connectors.



Figure 3

Microbend is the latest addition to the minibend family and was designed as an alternative to .047 semi-rigid cables. The microbend is designed for the tightest applications, where designers discover space available for cable assemblies is nearly non-existent. Further, microbend cable assemblies exhibit lower loss than .047 semi-rigid cable, along with superior handling. The bend radius of microbend® is offered at .060".

Microbend is currently available with SMA, SSMA, BMA, SMP, SMPM, 2.9mm, 1.85mm, SMK (2.9mm) connectors.

All minibend, mini141 and microbend cable assemblies can be ruggedized for demanding physical applications using our unique patented method.

Examine the entire minibend product line on our website (<http://www.minibend.com/>).

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