

Custom Cable Assemblies



Dynamic Custom Cable Assemblies for Harsh Environments

ITT has been a world leader in designing and manufacturing harsh environment micro interconnects and cable assemblies for over fifty years. In addition, our historical product and assembly expertise dates back over 85 years to the founding of the original ITT Cannon. Today, we provide complete turnkey cable assemblies for all of ITT's micro connector portfolio including: Cent Line Interconnects, MDM series, M83513 Series, MEB series, MDM Mixed Signal Packages, MT strip interconnects, micro miniature circular MIK series, and our high density Nano Connectors. Our cable assembly expertise has allowed ITT to develop innovative Six Sigma driven manufacturing processes that allows our customers a full breadth of tight pitch cable assemblies in 0.100, 0.075, 0.050, and 0.025 contact spacing.

ITT's harsh environment interconnects and cable assemblies are used in the most demanding applications and environments. You will find our products in such markets as: Aerospace, Defense Electronics, Geophysical Exploration, High Speed Computer Networking, Industrial Automation, Medical Electronics, Satellite and Space Communications, and Telecommunications. Our complete interconnect solutions have flown on every major Aircraft and Space platform since the 1940's. In fact, many aircraft mechanics still refer to ITT Cannon connector and cable assemblies as the Aviation standard.

Our product portfolio has been developed and is continuing to be developed to provide our customers with new and better technologies that offer superior system level performance while lowering overall system level costs. Our corporate culture in Six Sigma Methodologies allows ITT to continuously challenge our Engineering and Scientific professionals to develop new processes and technologies in Material Science, Automation, and Testing to ensure that our customers get the best cost effective harsh environment cable assemblies from ITT. You should expect no less from an Industry leader.

The following paragraphs highlight several examples of interconnect cable assemblies for various Market segments that ITT services. These examples represent just a snapshot of the many custom micro interconnects or cable assemblies that ITT can provide the industry.



Custom Micro D and M83513 Interconnect cable assemblies

As one of the original developers of the Micro Interconnect technology, ITT has been an industry innovator in providing complete harsh environment cable assemblies and stretching the state of art in such areas as: Filtering, Hermetics, moisture barriers, High Speed and Mixed Signal Packages, EMI suppression, and multiple cable types. Most of ITT's custom cable assemblies utilize our standard Micro pin contact system. However, ITT does use other types of contact systems when manufacturing mixed signal interconnect systems where signal speed and power contacts will be incorporated into a complete cable assembly solution.

ITT manufactures complete cable assemblies worldwide at locations in Santa Ana California, Basingstoke UK, and Nogales Mexico. The various engineering and manufacturing centers of excellence are utilized to best fit various cable assembly and product platform specialties to provide our customers with the most cost effective solutions.



Space Grade Micro Interconnect cable assemblies

ITT has been deciding and manufacturing Space Rated interconnects and cable assemblies since the beginning of the US space Program in the mid 20th century. Prior to the MIL DTL M83513 specification ITT had been qualified for all NASA GSFC performance and specification requirements, on numerous satellite and space launch systems. ITT's Engineering and Product teams have over 200 years of combined experience in design, manufacture, and test of Space flight interconnects and cable assemblies. Our expertise in material science, manufacturing processes, out gassing, testing and screening, Magnetic permeability, and Cryogenics has given ITT a tremendous understanding in developing high reliability space system interconnects and cable assemblies .

All of ITT's Space rated micro interconnect assemblies utilize ITT QPL M83513 connectors. These cable assemblies are tested to meet the most stringent performance requirements as outlined by numerous NASA GSFC specifications. Additional performance and test requirements beyond existing NASA GSFC guidelines can always be tailored so that additional custom test programs can be incorporated.

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High Temperature Harsh Environment Interconnect Assemblies

The proliferation of deep water drilling prospects in the world's oceans has created increased performance demands for micro miniature interconnects and cable assemblies for down hole oil field exploration. Not only are new fields being discovered in ocean depths greater than five miles but the wells themselves are being drilled deeper into the earth's crust, sometimes to depths of 30,000 feet. Thus, the temperature extremes in excess of 200 degrees C are becoming the norm. In this the most demanding of environments, ITT has been designing and manufacturing such micro interconnect connector and cable assemblies for over forty years. Again our engineering and manufacturing expertise in the material science of Liquid Crystal Polymer (LCP), fluorosilicones, plating, metals, and high temperature epoxies is leading ITT to develop high temperature performance beyond 200 degree C operating temperatures.

Pictured below is an ITT high temperature nano interconnect assembly. ITT is developing new products around this nano interconnect platform that will not only increase signal density but will include new material's and processes for higher temperature applications.

Medical Electronics Cable Assemblies:

As microminiaturization continues in the medical technologies field so the contributions of ITT's micro interconnect devices and assemblies. Our custom medical assemblies are utilized in such applications as: patient monitoring, diagnostics, imaging, and disposable systems. These types of application have been well served by ITT's Nano, MT strip and MIKQ series of interconnects. In addition to there specific connector types, ITT is well experienced in the careful selection of medical grade cables and termination materials to ensure fully compliant med. cal cable assemblies.

Shown below is an example of ITT's MIKQ high strength plastic circular quick disconnect connector cable assembly for a medical application.



Dimensions shown in inch (mm)
Specifications and dimensions subject to change

www.ittcannon.com

Flex Circuit Cable Assembly

Terminating to Flexible Circuits



Ideally, for a low profile and a neat finish, it is best to terminate flexible circuits in line with the contacts. Since most Microminiature connectors have contacts set into two or three rows, termination is a simple process.

The diagrams opposite are basically a design guide for pad arrangements, to suit MDM connectors in particular and to ensure the circuits enter the potting well. The length of the pad is optional but of course it is important to provide enough coverlay, especially at the edges of the circuit, to avoid de-lamination. We suggest at least 0,51 mm (.020 inches). Our standard potting shrouds provide support to the circuit with a dimension of 7,00 mm (.275 inches) from the rear of the flange.

Please consult Customer Service for specific flex circuit assembly design considerations and requirements.

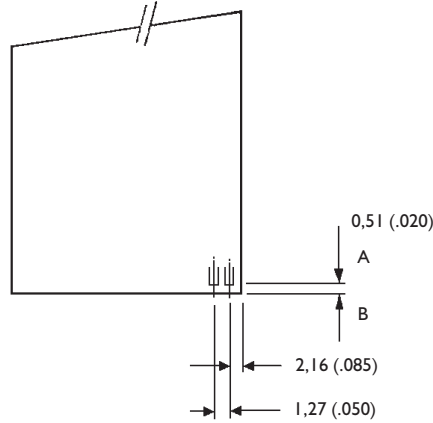


Diagram 1 shows details of the pad spacing and the suggested amount of material to be left between the end of the pad A and the edge of the flex B.

Diagram 2 illustrates how the connector is prepared with short pigtails and a special first pot which just captures the contacts. The final back potting for strength is controlled by our standard 7,00 (.275) potting fixtures.

