

Amphenol Aerospace

Soldering

There are no special requirements when soldering Amphenol Filter connectors. The epoxy used to backfill the connector acts as a heat sink, protecting the filter from heat build up during the soldering process.

Amphenol recommends that the customer follow the procedures outlined in J-STD-001. It is the customer's responsibility to determine which of the three classes of quality is appropriate in regards to the intended end-item use.

Filter Pin Connectors and High Pressure Water Wash

There are several misconceptions about filter pin connectors that have caused issues with either post solder cleaning or post assembly testing. A filter pin connector is mechanically the same as the Mil-C connector that it replaces. The filter pin connector is a Mil-C connector on the exterior with a passive circuit internally. It will perform all of the mechanical functions of the connector that it replaces but that is the end of the similarity. The filter pin connector contains a filter element that consists of one or two planar capacitors with ferrites if it is anything more than a 'C' filter. The connector rear and mating face are sealed with epoxy materials. The rear is sealed with a hot seal material that is designed to tolerate the heat of the soldering process, solder fall or solder iron. The front is also sealed but with a different style epoxy material. The connector is not a Hermetic connector.

After soldering the connector to the flex or PCB, the general user cleaning process today is the hot water, high pressure wash used to remove the flux residues. The connector will tolerate this process without any serious consequences or the ingestion of water into the connector. There are two things that the user needs to understand, epoxy material at temperature will leak and that a hot connector with the mating face full of water due to positioning during cleaning will suck the water into the connector as it cools. The rear of the connector is positioned facing down so that water cannot collect and then be drawn into the connector during cooling. The pressure wash will not force water into the connector but the process of cooling will draw the water inside. Once inside, water is almost impossible to remove except under heat and vacuum. If voltage has been applied with the water inside, there will be serious IR failures with most being surface tracing due to voltage breakdown.

To prevent the ingestion of water and solvents into the connector, the mating face must be covered with a protective cap with a gasket seal. Even though the connector is sealed to prevent moisture to enter the connector, at temperature these epoxy materials will open microscopically. These openings allow the water to enter as the internal temperature cools the water will be drawn inside replacing the air. The connector, like its Mil counter part, is designed to work in high humid environments when mated. The filter connector with the epoxy seal will pass the humidity test unmated, but not under the above conditions of water immersion while hot. The last difference is that the filter elements dictate the voltage limits of the connector, not the Mil Spec.