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Hi-Rel By Design

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Design & Process Guidelines

GUIDE# 10

Application Guidance for Solderable Hermetic SMP Connectors

Solderable, hermetic SMP connectors, available over the last 15 to 20 years, were available in two forms; two-piece and one-piece construction.

The two piece connector consisted of a glass-to-metal seal whose pin became the center pin of the connector and a threaded insert which was installed in a threaded counter-bore after installation of the feedthru which formed the connector socket and detent. This design is quite reliable and user friendly assuming a reliable glass-to-metal seal design is utilized.

The one-piece design poses problems on getting sufficient solder into the solder cavity to make a reliable solder joint. The typical installation allows for minimum solder availability and no method of getting additional solder into the joint once it is made.

There are design methods for applying the solder which can be effective, but are higher risk for yield and/or cost. These include feeding solder down the side of the upper SMP body or utilizing a solder feed hole in the housing 90° to the axis of the barrel which allows hand feeding solder to the desired area of the feedthru. The latter approach is sometimes used with masking techniques to limit the solder flow to more restricted areas.

SHP offers variations of the one-piece SMPs which optimize these connectors for ease of application and reliability for various materials both high and low expansion. The high expansion version utilizes the patented approach used on all SHP "aluminum compatible" feedthrus. This design optimizes the solder joint, facilitates application of the correct amount of solder and is highly inspectable.

The lower expansion version recommended for Kovar and other low expansion housing materials utilizes a newly patented approach which optimizes solder application provisions.

See Product Bulletin# 900 for the various SMP options.