

## PkZ® Technology Advances MIL-DTL-38999 and Mighty Mouse Performance

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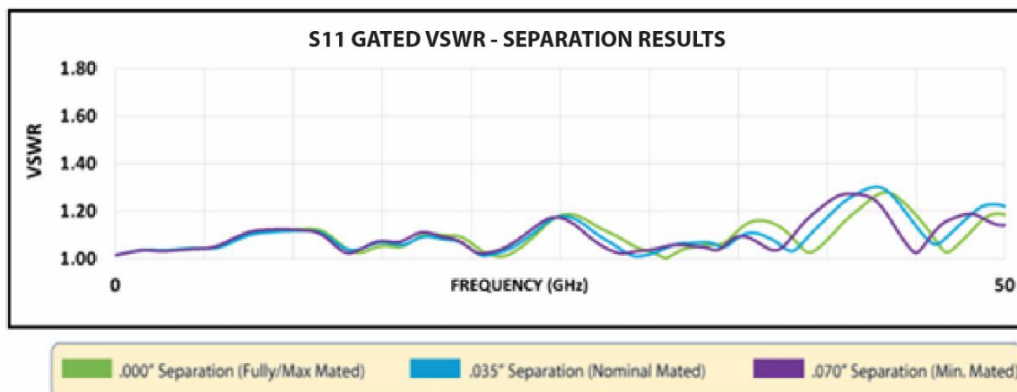
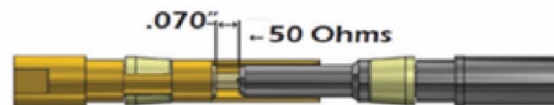


The PkZ Blindmate Microwave contact was designed to overcome mating challenges resulting from tolerance stack-up in multiport applications. Developed in the 1980's by The Phoenix Company of Chicago, the PkZ was adopted as the standard power amplifier I/O contact by the cellular industry through Phoenix's work with Motorola and Northern Telecom. Over the past 30 years, PkZ technology has been refined and adapted for a wide range of cable selections and termination styles with accommodations for various contact housings and consistent performance to 40+ GHz (series / cable dependent). Size 8, 78-Series PkZ and size 12, 178-Series PkZ contacts offer multiple form/fit options for use with the MIL-DTL-38999 and Mighty Mouse connector housings, as well as their equivalents.

The PkZ ("P" Phoenix, "k" Constant, "Z" Impedance) contact achieves constant impedance over the industry's widest axial mating tolerance. This is accomplished through careful control of the contact's inner / outer conductor diameter ratio during mating and with a dielectric material selection that considers the likelihood of partial contact engagement due to system tolerance stacking. Constant, matched impedance is a requirement for high performance microwave transmission which the PkZ accomplishes without the use of an engagement spring or other external measures.

Traditional performance-level MIL-DTL-38999 and Mighty Mouse RF contacts require spring pressure to ensure the contacts are fully mated. An integrated metal spring built into the contact forces the two mating interfaces together. This elaborate method, often hailed as a design feature, is simply meant to address the design's primary flaw: 100% engagement plus additional pressure are required to ensure an acceptable electrical connection. However, the addition of moving parts to the design paves an obscure path towards the correction of an inflexible interface. The spring represents a single point of failure and contributes greatly to the contact's mating force requirements.

The unique PkZ design provides constant impedance even as gaps are introduced in the mating interface.



## The PkZ vs Traditional MIL-DTL-38999 and Mighty Mouse Contacts

- With a VSWR of less than 1.3:1 per mated pair to 40 GHz (178-Series), the PkZ produces an incredibly consistent electrical response across its operating range. The chart above highlights this consistency from full mating to a .070" mating gap.
- The PkZ achieves constant impedance without an engagement spring or other elaborate methods. An industry best axial mating tolerance helps to ensure a proper electrical connection is made within multiport blindmate and other mass termination applications.
- The PkZ's low insertion forces simplify the connection process within multiport applications.
- The PkZ is a true blindmate contact and was designed to be used as a contact in a multiport housing. Systems utilizing connectors as contacts, like the SMPM, are not able to match the performance and precision of a blindmate microwave contact. SMPMs are best reserved for single connection RF applications.
- The Phoenix Company of Chicago can customize the PkZ design to meet unique requirements and demanding applications; Special properties, footprints, and features can be incorporated to help satisfy such challenges. Customization is supported by a full in-house Engineering staff and a vertically integrated U.S. factory.

Phoenix's 78-Series and 178-Series PkZ contacts for MIL-DTL-38999 and Mighty Mouse connectors are utilized in a wide range of applications where signal integrity and high performance are critical. Additional customer support includes an in-house cable assembly program, which produces complete high performance cable assemblies and harnesses with the same precision and care used to manufacture each PkZ contact. Both the size 8, 78-Series and size 12, 178-Series PkZs are available in a range of configurations to accommodate various cable groups and termination requirements. Properties such as non-magnetic and hermetic are available to meet application-specific requirements.



Low insertion forces, constant impedance, and a true blindmate contact design are all trademarks of the PkZ. The contacts are utilized in MIL-DTL-38999 and Mighty Mouse connector housings with great impact. Demanding applications in Aerospace, both commercial and defense, require the rugged high-performance and reliability the PkZ delivers.