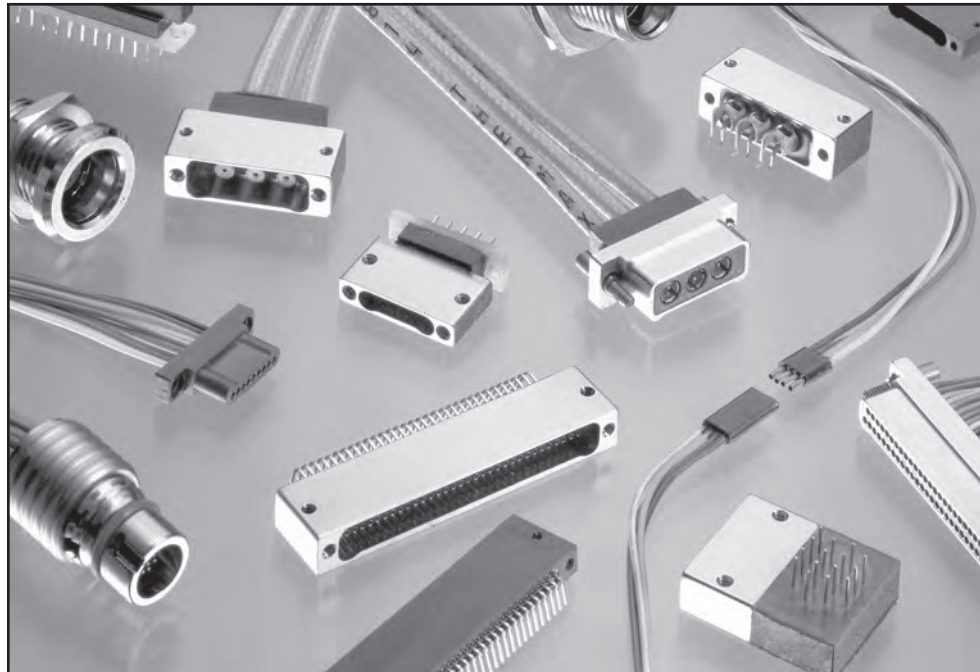


Nano-Miniature Connectors - Introduction



Nano-miniature connectors constitute a family of interconnect devices with center to center contact spacing of .025". In comparison to other connector families, they are often thought of as the smallest practical connector system for separable interfaces. Despite being smaller, these nano-miniature connectors are tested with a few size-related modifications per the guidelines of MIL-DTL-83513 (written for .050" micro-miniature connectors). Nano-miniature connectors combine their appealing size and weight with desired performance attributes such as high reliability, low contact resistance and wide operating temperature range,

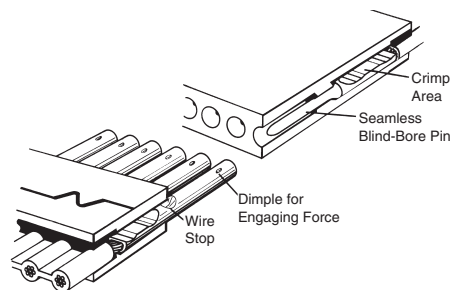
making them among the smallest and toughest connectors available to designers.

The Contact System

Nanonics connectors utilize the same contact system throughout the entire product family. This contact system uses a "spring socket" as opposed to most connector designs, which use a "spring pin". In this design, the socket member of the contact pair employs a dimple located inside the contact tube. When the pin is engaged with this socket, the dimple creates the desired spring action by forcing the pin to offset to the opposite side

of the socket tube. The result is a gold-on-gold mating area covering a minimum of 180° of the contact surface. This also creates a desirable mating force of no greater than 6 ounces per contact and a resistance of .003 ~ .008 ohms. This type of contact system begins with a pre-plated BeCu alloy material that is then formed to yield a rugged, seamless contact. Both the blind-bore seamless pin and the seamless one piece socket have a burnished gold finish on both the inside and outside surfaces. This gold finish provides contact integrity for superior reliability and environmental performance.

Contact Configuration



Nano-Miniature Connectors**Technical and Performance Data****Electrical****Contact Resistance** – .003 - .008 ohms**Current Rating** – 1 amp max. per contact**Dielectric Withstanding Voltage** – Volts RMS 60 Hz at room ambient conditions. At sea level 500V. At 70,000 ft. 150V.**Insulation Resistance** – 5000 megohms min. (@ 500 VDC) at room ambient conditions.**Magnetic Permeability** – 2 mu max.**Mechanical****Contact Engagement & Separation** – Engaging force is 6.0 oz. max. Separation force is 0.5 oz. min.**Mating Force Maximum** – Calculated as 10 oz. multiplied by the number of contacts.**Environmental****Temperature Range** – -200° C to +200° C**Shock** – No discontinuity in excess of 1 μ sec. when tested in accordance with MIL-STD-1344, Method 2004.1, Test Condition E.**Vibration** – No discontinuity in excess of 1 μ sec. when tested in accordance with MIL-STD-1344, Method 2005.1, Test Condition IV.**Solderability** – Connectors shall meet the test requirements of MIL-STD-202, Method 208.**Durability** – No mechanical or electrical defects detrimental to the function of the connectors after 500 cycles of mating and unmating, without the use of hardware.**Humidity** – After exposure to humidity as specified by MIL-STD-1344, Method 1002.2, Type II, IR shall be 1 megohm min. (@ 100 VDC) within 2 hours of conditioning and 1000 megohms min. (@ 100 VDC) after 24 hours of conditioning.**Salt Spray** – Connectors shall meet the performance requirements of contact resistance, mating and unmating forces, and contact retention after being subjected to the 48 hour 5 % solution salt spray test per MIL-STD-1344, Method 1001, Condition B.**Fluid Immersion** – Unmated connectors after being fully immersed in one of the following fluids, for the prescribed time, will mate at a force of 10 oz. multiplied by the number of contacts or less: Perchloroethylene, 2 hours; Lubricating oil per MIL-L-23699, 20 hours.**Crimp Tensile Strength** – (Unassembled contacts with crimped stranded wire terminations) Wires will not pull out of the contacts when the following axial load is applied: #30 AWG, 2 lbs.**Thermal Vacuum Outgassing** – Connectors shall have a maximum total mass loss (TML) of 1.0 % of the original specimen mass and a maximum collected volatile condensable materials (CVCM) content of 0.1 % of the original specimen mass when tested in accordance with SP-R-0022A.**Material and Finish****Contacts** – BeCu alloy plated with gold per MIL-G-45204 Type II over nickel per QQ-N-290.**Plastic Insulators and Shells** – 30% glassed filled Liquid Crystal Polymer (LCP).**Metal Shells** – 6061-T6 Aluminum with electroless nickel plating per MIL-C-26074. Stainless steel and gold plated shells are also available.