

Ultra-high vacuum microwave feed-through N female

- High-performance microwave design
- Extreme environment capability
- High-reliability precision connector interfaces
- MTBF >10,000,000 hours per MIL-HDBK-217
- UHV materials
- Designed for welded installations
- Easily modified for custom designs



Overview

Meggitt Safety Systems designed this type N UHV feed-through specifically for beam position monitoring (BPM) applications that require a pure 50-ohm impedance with a long center pin extension for welding to strip line section. The user can directly weld the feed-through body into a beam pipe assembly using e-beam, laser, and even TIG methods.

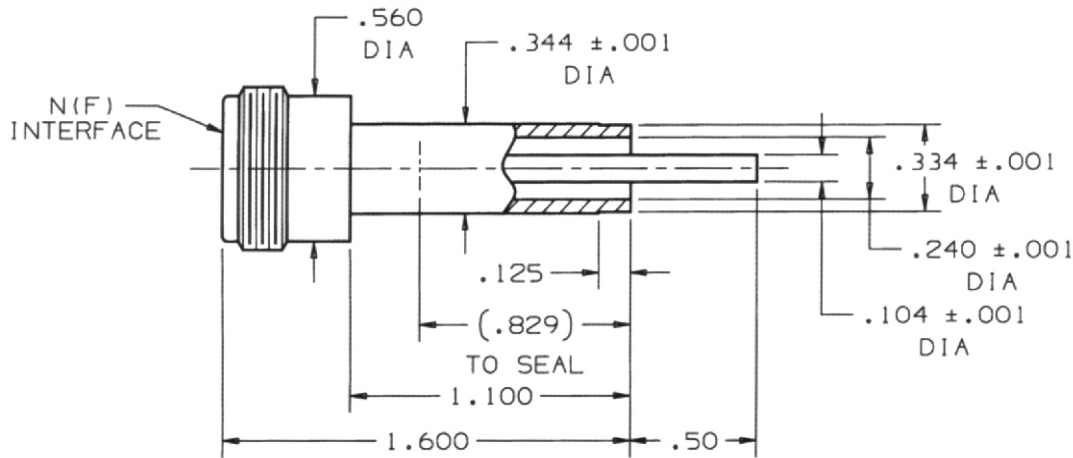
As with all of our connector designs, we accurately predicted electrical performance using sophisticated microwave analysis tools. We accomplished impedance matching with proven techniques for precision broadband microwave devices. This close attention to microwave principles results in a high-performance electrical design with low reflections to 12 GHz. The type N interface offers the optimum geometry for a highly reliable and rugged connection at higher power levels.

With an assortment of materials available, we can easily modify this basic design for a wide range environments. Please give us a call for your custom requirements

Applications

- Beam position monitors for particle accelerators
- Plasma deposition chambers
- Sputtering
- High power levels
- Anywhere a microwave signal must be brought through a process barrier (vacuum, pressure, environment, etc.)

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Performance specifications

Impedance: 50 ohms

Frequency Range: DC to 12 GHz

VSWR: 1.03:1 max to 3 GHz; 1.25:1 max to 12 GHz

Insertion loss: 0.10 dB max @ 3 GHz; 0.35 dB max @ 12 GHz

Insulation resistance: $>10^{12}$ ohms

Voltage: 1,500 VRMS

Operating temperature range: based on outer body material

304 stainless steel: 77°K to 573°K (-196°C to +300°C)

316 stainless steel: 4°K to 573°K (-269°C to +300°C)

Inconel®: 77°K to 773°K (-196°C to +500°C)

Hermeticity: $<2 \times 10^{-10}$ cc He/sec

Radiation: >200 megarads gamma

Connector interface: N per MIL-C-39012

Materials

Outer body: 304 stainless steel, 316L stainless steel, or Inconel®

Center conductor: TZM molybdenum per ASTM B365

Insulator: AL_2O_3 strengthened boro-silicate seal (130,000 psi compressive strength)

Connector contact: gold-plated BeCu

Custom materials: Monel® and titanium

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Meggitt Safety Systems is a Meggitt group company. Headquartered in the United Kingdom, Meggitt PLC is an international group operating in North America, Europe and Asia. Known for its specialized extreme environment engineering, Meggitt is a world leader in the aerospace, defense and electronics industries.