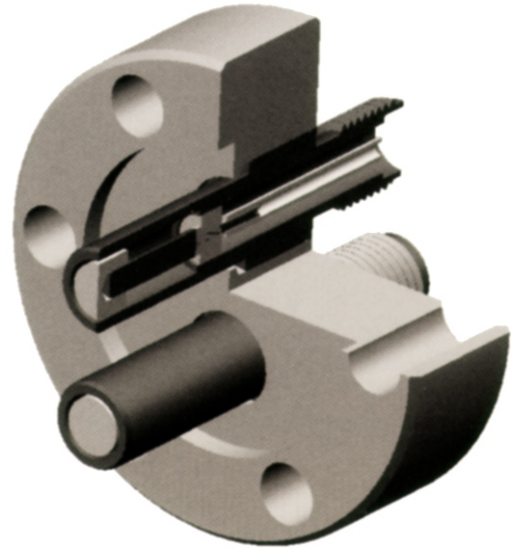


Ultra-high vacuum microwave pick-ups

- High-performance microwave design
- Precise positioning of button pick-up for repeatable and accurate beam positioning
- Extreme environment capability
- Precision connector interfaces
- Precision button tolerances <0.0001 inch
- MTBF $>10,000,000$ hours per MIL-HDBK-217
- UHV materials
- Hermetically welded to standard Conflat®



Overview

Meggitt Safety Systems custom designed this double-button pick-up for a beam position monitoring (BPM) application at the Advanced Photon Source, Argonne National Laboratory. Their measurements required the utmost precision and repeatability of the capacitive element. The critical positioning of both button pick-ups challenged us to create unique fixturing methods in order to retain the proper alignment during laser welding into the Conflat. We also worked closely with Argonne on techniques to hold close tolerances during installation

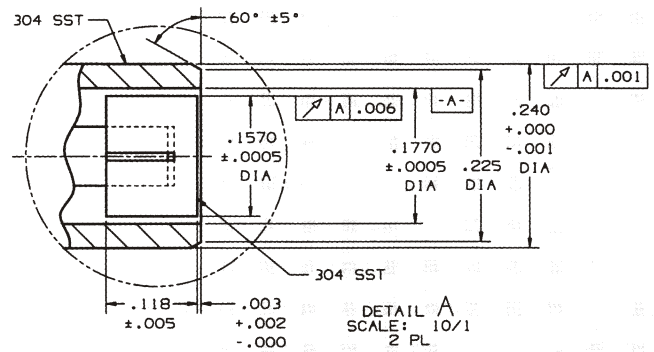
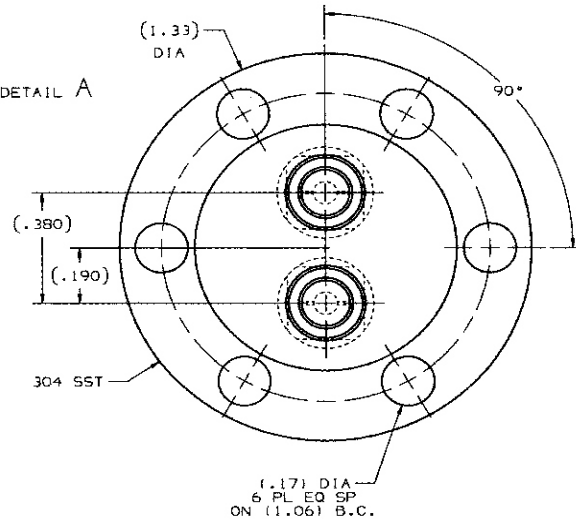
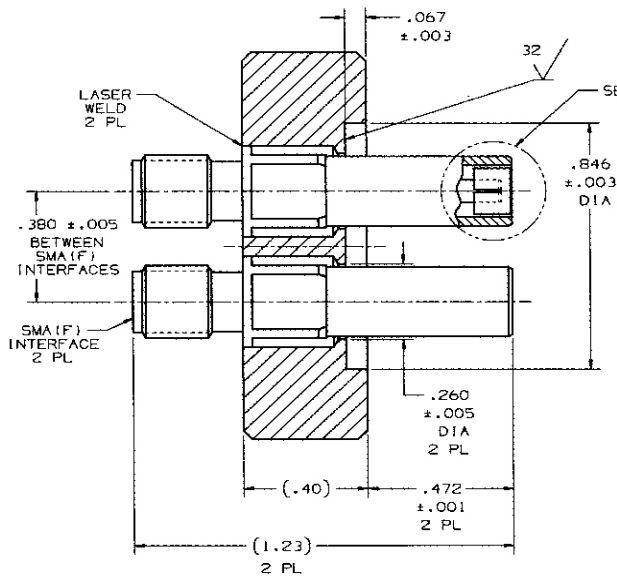
As with all of our connector designs, Meggitt Safety Systems accurately predicted electrical performance using sophisticated microwave analysis tools. The result is a 50-ohm high-performance microwave pick-up with very low reflection characteristics at frequencies to 20 GHz.

Meggitt Safety Systems applies 40 years experience in designing and manufacturing high-performance, high-reliability microwave transmission devices for a wide range of applications. Please give us a call for your custom requirements.

Applications

- Beam position monitors for particle accelerators
- Other configurations and custom designs available
- Anywhere a microwave signal must be brought through a process barrier (vacuum, pressure, environment, etc.)
- Part shown – #853881

Ultra-high vacuum microwave pick-ups



Performance specifications

- Impedance:** 50 ohms terminated by a capacitive button
- Frequency range:** DC to 20 GHz
- VSWR:** 1.03:1 max to 3 GHz; 1.15:1 max to 20 GHz
- Insertion loss:** 0.10 dB max @ 3 GHz; 0.50 dB max @ 20 GHz
- Capacitance:** One pico farad
- 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:** 1×10^{-11} cc He/sec
- Radiation:** >200 megarads gamma

Materials

- Outer body:** 304 stainless steel, 316L stainless steel, or Inconel
- Center conductor:** TZM molybdenum per ASTM B365.
- Insulator:** AL₂O₃ strengthened boro-silicate seal (130,000 psi compressive strength)
- Connector contact:** Gold-plated BeCu.
- Connector interface:** SMA per MIL-C-39012

Options

- Custom materials:** Monel®, titanium, and others
- Connector interfaces:** N and TNC; others available
- Also available:** High power, custom button designs

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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.