Amphenol
MILITARY & AEROSPACE

Amphenol Military & Aerospace Operations

Hermetic & Sealed Connector Guide

Hermetics:

Hermetic connectors are essential to maintain system integrity in applications where the reliability and performance of electrical connectors are critical, such as gas-tight barriers or areas with high-pressure differentials. AMAO offers hermetic connectors tailored specifically to your requirements, providing seals able to withstand pressures of up to 60,000psi (4,100Bar), temperatures up to 1,000°C (1832°F) and for use in aggressive and hostile environments. They can be optimized to match existing or specialized mounting requirements, often providing alternative solutions to conventional connectors, particularly where space is an issue. All AMAO hermetic connectors are engineered to optimize functionality.

Capabilities:

- Custom Hermetic Connectors
- Hermetic M12 Connectors
- Subsea Connectors
- Hermetic Vacuum Connectors
- Hermetic Filtered Connectors
- Hermetic Rectangular Connectors
- Special flanges
- PC board mounting stand-offs
- PC board mounting tails
- Through bulkhead configurations
- Crimp termination
- Matched or Compression Seals
- Custom mounting arrangements for system integration
- Customized and selective plating options

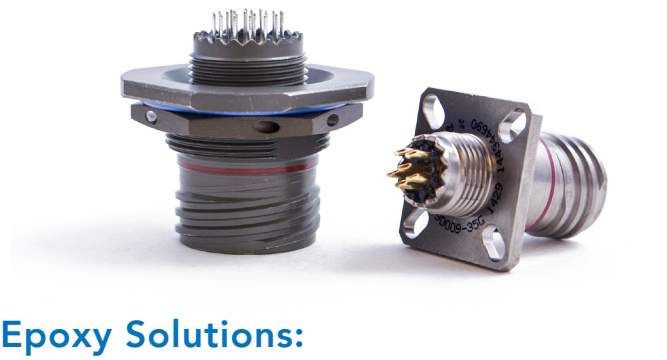
HERMETIC & SEALED GUIDE

Typical Hermetic Solutions:

Using a wide range of materials and manufacturing capabilities, AMAO provides custom designed solutions for glass to metal seals and electrical feedthroughs with advanced sealing techniques and on-site plating facilities.

Seals can be supplied in multi-pin preforms or, for high pressure applications (up to 60,000psi), in individual glass beads. Such seals can be manufactured using a range of alternative shell & pin materials including; stainless steel, aluminum, titanium, inconel, thermocouple materials, molybdenum, and more. AMAO also specializes in high speed hermetics with capabilities to manufacture impedance-matched glass-sealed coax hermetic interconnects.

Quality programs include advanced mechanical and electrical inspections, as well as nondestructive testing and pressure testing. 100% leak testing can be carried out in house for fail-safe hermeticity. Customers can choose from our standard product range or bespoke concept to supply solutions.



Epoxy Solutions:

AMAO epoxy-sealed connectors are a lightweight alternative to glass-sealed hermetic connectors for use in avionics and other weight-sensitive applications where a high level of sealing is required. Epoxy-sealed connectors are an optimal solution when increasingly stringent sealing requirements must be met.

Features and Benefits:

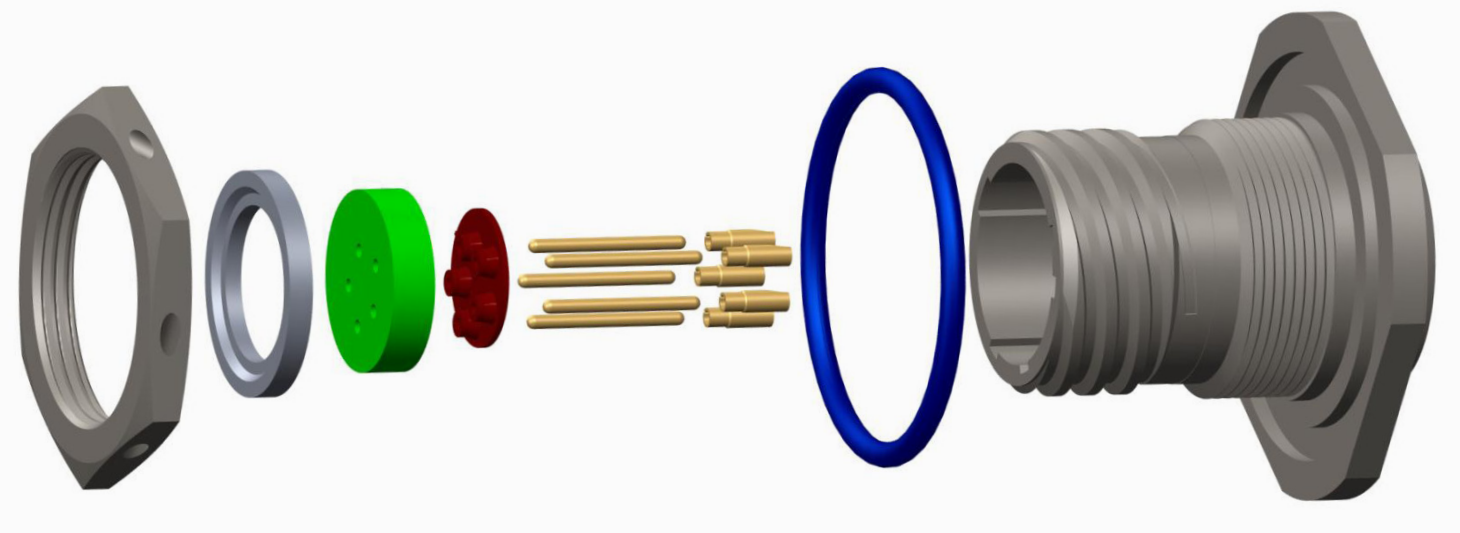
- Same epoxy as used in EMI filter connectors
- Less than 1 x 10-5 cc of He/sec leak rate
- Maintained after temperature cycling, 5 cycles -55 to +125°C
- Custom designs available with lower leak rates upon request
- Aluminum shells with Electroless nickel plating standard
  - Also available in Durmalon and O.D. Cadmium finishes. Steel available upon request
- Accessory threads sized for standard backshells
- Intermateable & inter-mountable with standard 38999 Series III plugs
- Uses Amphenol's standard "Filter Epoxy Compound" - 50 years of proven reliability and experience

Circular Mil-Spec-Type:

- Amphenol glass sealed hermetic connectors are available in a wide variety of Mil-Spec configurations.
- They feature a Leakage rate of 1 x 10-7 cc of He/sec or less
- Fused glass insert in steel shell
- High volume manufacturing options

- Amphenol maintains the following QPLs for hermetic products
  - MIL – DTL 38999 Series I, II, III
  - MIL – DTL 26482 Series I, II
  - MIL – DTL 83723 Series III, Pyle
  - MIL – DTL 26500 Type (Threaded or Bayonet)

All styles are also available in Non MIL – SPEC, Commercial options that will meet the MIL – SPEC requirements



Tips for Customizing Hermetics:

1. How many Conductors?
Consider including a number of redundant conductors to accommodate any system developments you have planned for the future, or to comply with specified growth provisions.

2. What are the electrical requirements?
Work out a steady state and peak requirement for both the current and voltage.

3. Will your Glass-to-Metal Sealing be under any pressure?
Depending on the medium (for example, oil, water, or a vacuum) there may be a pressure differential to consider. Glass-to-Metal Sealing (GTMS) can be supplied in multi-pin preforms or, for high pressure applications (up to 60,000 psi / 400 MPa), in individual glass beads.

4. How will your GTMS be attached?
Will it be secured with a standard O-ring, for example, or welded in place/?

5. What are your cable interface requirements?
Be sure to include any instructions for screen termination, potting requirements, and/or cable strain relief.

6. Do you require custom functionality?
If you have any specific requirements, such as electromagnetic compatibility (EMC) filters or printed circuit board (PCB) mounting, make sure they are included in your design specification.

7. What are your plating requirements?
We offer a wide range of in-house plating options, including tin, nickel, and hard and soft gold. We can also customize the plating to meet any special requirements. Note that gold-plated solder contacts should either be desoldered before installation, or appropriate plating thickness specified, to avoid solder embrittlement.

8. Are there any environmental factors?
If your application will be operating in a harsh or hostile environment (exposed to shock, vibration, thermal changes or extreme temperatures, for example) these will need to be factored into the design.

9. What are the qualification requirements?
If qualification tests are required, these should be discussed and specified during the design phase. We are able to perform most qualification tests on the appropriate levels of assembly.

10. What testing will you need?
Examples include leak testing, pressure testing, and geometrical and electrical testing; including breakdown, voltage, and insulation resistance of finished parts.

Cabling and wiring too?
If you would like to extend your brief to include your cabling and wiring requirements, we can also address those requirements.

Contact Information:

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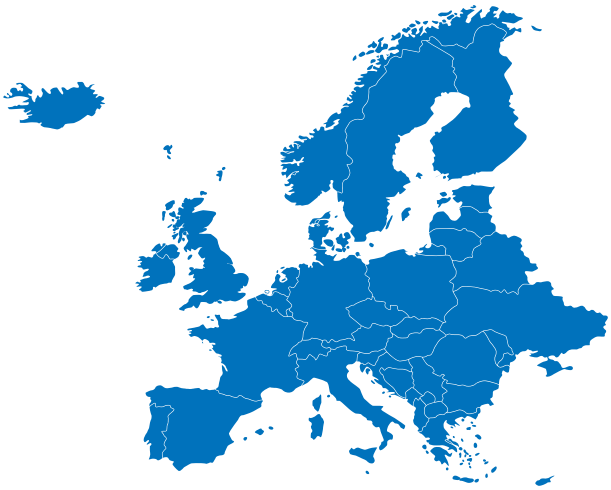

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