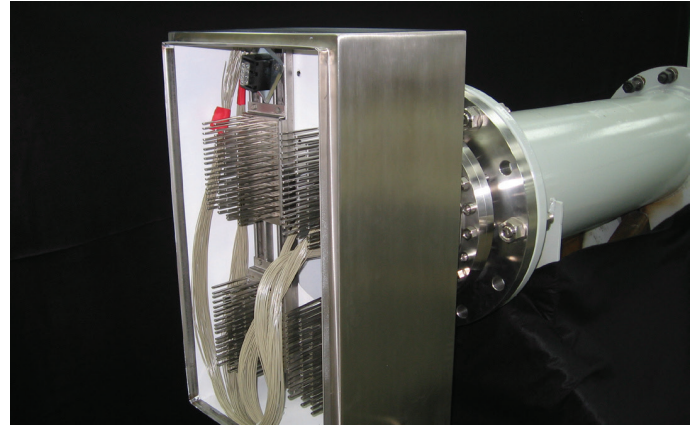
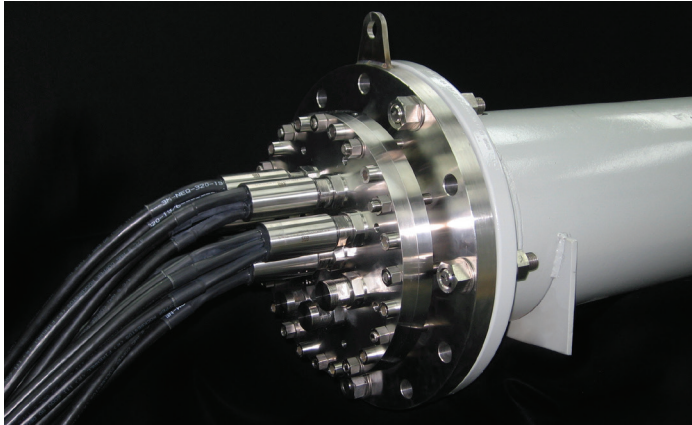


Nuclear Power Products and Services



Product Description

Electrical Penetration Assemblies (EPAs) transfer electrical power and signals through the NPP containment wall and ensure the containment pressure boundary is maintained during design basis accident conditions. This dual function, as a safety-related electrical and mechanical device, makes the EPA a unique nuclear component.

EPAs are configured with individual feedthrough modules that are mounted to a bulkhead flange, header plate, or canister. Feedthrough modules are constructed with electrical conductors to pass electrical signals or power, insulators, and seals in a stainless steel housing. Feedthrough modules and the bulkhead flange aperture are supplied with double redundant seals and internal nitrogen gas containment space for leakage monitoring.

Application Design Options

- Low voltage power
- Control and instrumentation
- Coaxial and triaxial instrumentation
- Medium voltage power
- Fiber optic

Available Configurations

- Bulkhead flange (header plate) with removable feedthrough modules
- Canister design with removable or fixed feedthrough modules
- Double bulkhead flanges with feedthrough modules

Penetration pipe size (inches)	Module Diameters (inches)	Typical Conductor Range	Typical Wire Insulation Type
4 - 24	1, 1.25, 1.5, or 2	18 AWG to 1500 MCM	PEEK, Polyimide or XLPE

Design Features

The Curtiss-Wright EPA can be supplied as a single feedthrough module or as an entire assembly, including:

- Feedthrough modules with integral lead wires
- Flanges, canisters, or header plates
- Junction Boxes (both inboard and outboard)
- N2 pressure gauge and shut off valve

Qualification Levels

- Qualified life: 60 years
- Thermal Aging
- Radiation
- Seismic
- Thermal Cycling
- High Current Testing
- LOCA/MSLB
- Flooding and Severe Accident

Qualification Standards

Successfully qualified by test for applications in harsh PWR/BWR environments, in accordance with:

- ASME NPT Certification
- IEEE 317-1983/2013
- IEEE 323-1974/1983/2003
- IEEE 344-1975/1987/2004
- KBE EP-146
- KBE EP-154
- Equivalent to RCC-E, K1
- 10CFR50/Appendix B
- 10CFR21
- NQA-1
- ISO 9001

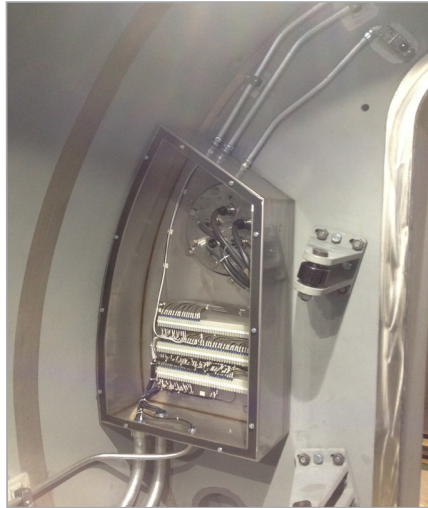
EGS Electrical Penetration Assembly

Value Added Appurtenances

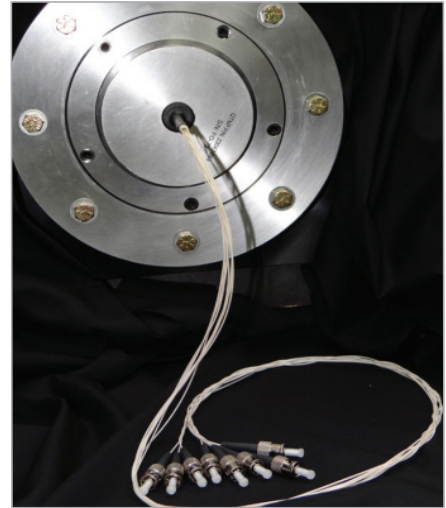
The EGS Electrical Penetration Assembly can be utilized in conjunction with industry recognized electrical connection devices to mate to existing plant wiring for ease of installation. We offer integrated electrical enclosures featuring tailored mounting racks for splice applications, including heat shrink or other splice, and GRAYBOOT series reusable splices.

Feedthrough modules can be provided with factory installed GRAYBOOTS to reduce installation costs/time. Curtiss-Wright Nuclear Division can also supply safety-related flexible metal conduit for cable protection and other connector options.

EPA Designs



Airlock EPA



Fiber Optic EPA



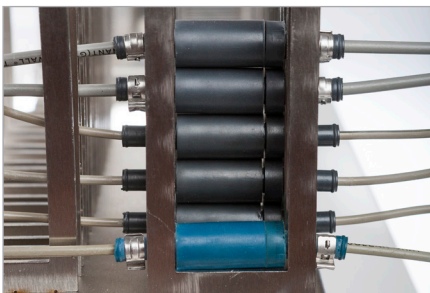
GRAYBOOT Splice Series



Coaxial EPA



Triaxial EPA



Mounting Rack



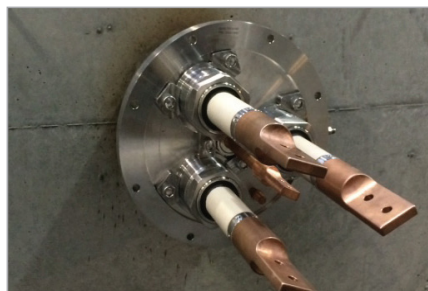
Low Voltage EPA



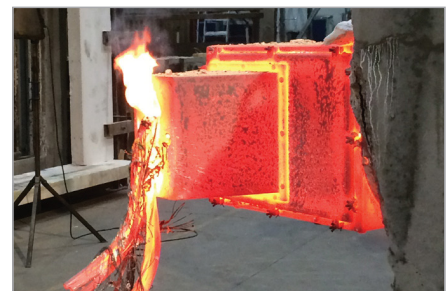
Low Voltage EPA



Flexible Metal Conduit



Medium Voltage EPA



Medium Voltage EPA Junction Box During a Fire Test

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