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

Design Features
The Curtiss-Wright EPA can be supplied with 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 317-1974/1983
• KBE EP-146
• KBE EP-154
• Equivalent to RCC-E, K1
• 10CFR50/Appendix B
• 10CFR21
• NQA-1
• ISO 9001

<table>
<thead>
<tr>
<th>Penetration pipe size (inches)</th>
<th>Module diameters (inches)</th>
<th>Typical Conductor Range</th>
<th>Typical Wire Insulation Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 24</td>
<td>1, 1.25, 1.5, or 2</td>
<td>18 AWG to 1500 MCM</td>
<td>PEEK or XLPE</td>
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</tbody>
</table>
Value Added Appurtenances
The EGS Electrical Penetration Assembly (EPA) can be utilized in conjunction with other 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 splices, 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.

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