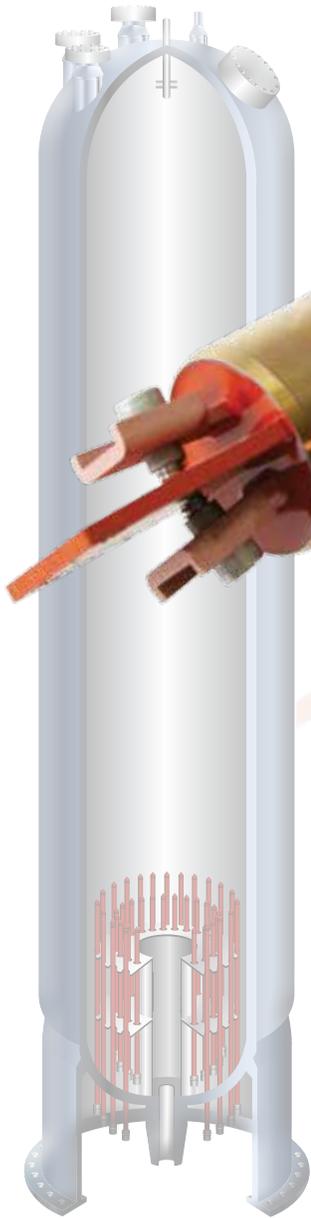


Pressurizer Heater



Features and Benefits

- > Wound-core heater technology with enhanced magnesium oxide (MgO) insulation inside stainless steel sheath
 - Optimizes the heat flux by placing element wire closer to external heating surface
 - Improves insulation properties leading to longer heater life
 - Maximizes heater life through independently operated parallel circuits
- > High temperature, high pressure seal technology
 - Provides a secondary level of protection - a proven leak-proof design
- > Terminal lugs with captive nut connectors
 - Eases installation
- > Nickel-chromium resistance wire combined with enhanced MgO and proprietary manufacturing processes
 - Ensures reliability and long life of the heater
- > True no-heat with discrete separation from heating element
 - Reduces residual heat flow towards pressurizer weld connections thus eliminating need for heat sinks
 - Decreases stress-corrosion cracking when used at the support plate
 - Allows easy identification of no-heat length through standard radiographic viewing
- > ASME Section III, NPT stamped heater
 - Reduces lead time
 - Ensures competitive price
 - Streamlines supply chain

Watlow's
Pressurizer Heaters
Provide Reliability
With Advanced
Thermal Technologies

Watlow's Pressurizer Heater

Since 1967, Watlow has continuously served both commercial and government nuclear industries with pressurizer heaters and technical support. Watlow engineers and manufactures heaters that meet customers' most challenging design requirements while adhering to the highest quality standards. The pressurizer heaters are supported by years of application knowledge, field support and technical capabilities from a dedicated engineering team. This engineering team works with industry leading, advanced nuclear plant designers to develop pressurizer heater technologies. Watlow has a dedicated manufacturing team using proprietary manufacturing processes in a state-of-the-art, lean manufacturing facility that has proven to meet customers' demanding delivery needs. These processes are ASME Section III compliant, allowing Watlow to provide NPT stamped heaters, meeting the industry's most stringent quality requirements.



Performance Capabilities

- > Operating temperature up to 800°F (426°C)
- > Operating pressure up to 2500 psi (17.2 MPa)
- > Power up to 55 kW (based on design)
- > Power supply: 240-600V, single- or 3-phase
- > Watt densities up to 190 W/in² (29.4 W/cm²)
- > Plant mean-time between failures greater than 20 years
- > Consult sales engineer for complete capabilities

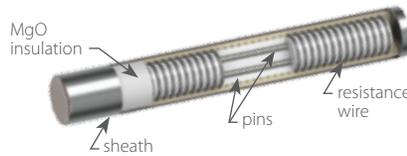
Construction Attributes

Sheath and end plug

- Heater diameters between 0.553 in. (14.0 mm) and 1.25 in. (31.8 mm)
- Forms the primary protection within the pressure boundary
- Materials used meet or exceed standard specifications
- Each heater is hydrostatically tested
- NPT stamped

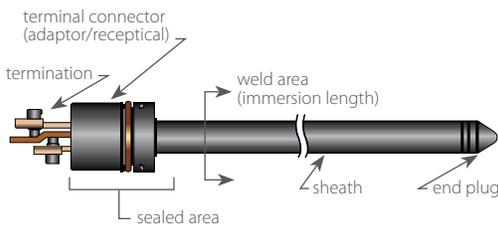
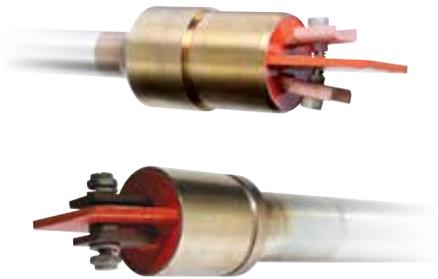


- Each core operates independently, electrically operated in parallel
- Heater element wire's proximity with the external heating surface, optimizes the efficiency of heat transfer through dielectric media
- Enhanced MgO provides dielectric strength between the high pressure/high temperature seal and the moisture seal



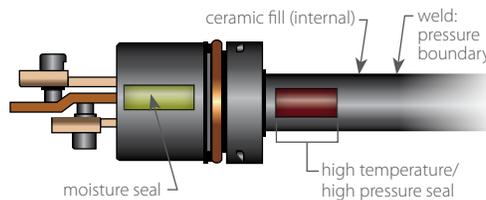
Termination

- Various terminations available to meet specific design requirements
- Designs allow for easy installation and removal from the pressure vessel



Seals

- High temperature/high pressure seal
Forms secondary protection in case of sheath rupture
Tested and proven to withstand over 3750 psi (over 25.86 MPa)
- Moisture seal
Forms a moisture barrier around the terminations
Provides excellent dielectric strength

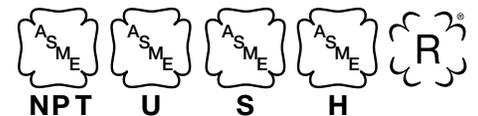


Independently operated parallel circuits

- Nickel-chromium resistance wire wound around cores
- Varying number of cores available

Quality

- Nuclear quality program
In accordance with NQA-1, NCA-3800 and 10 CFR 50 Appendix B
NPT Certificate of Authorization
- ASME Section III and VIII compliant



Watlow makes it possible.



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