

# Pressurizer Heater Power Cables

## Design and Supply of Specialty Cabling

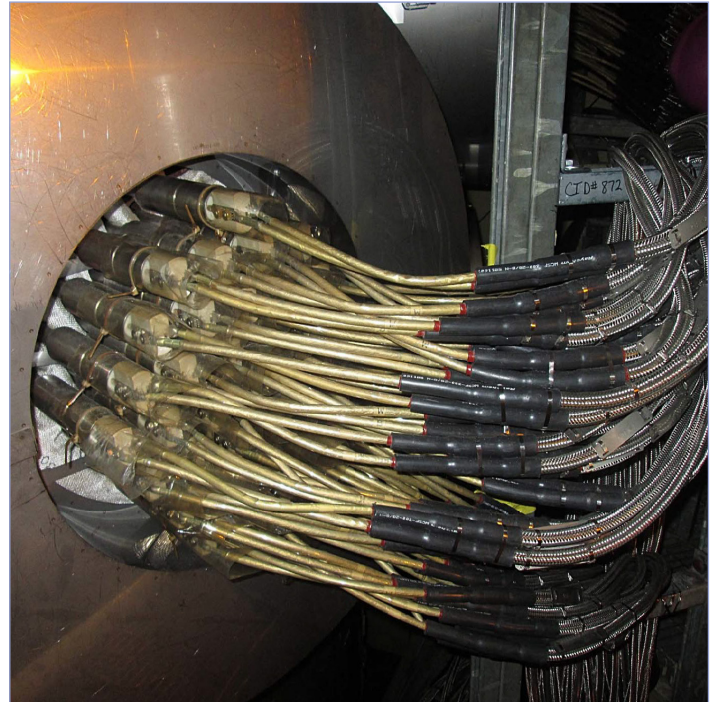
### Industry Challenge

Plants upgrading their systems or components may need cabling upgrades due to obsolescence, end of qualified life or a transition to a new system. AREVA NP can assist with engineering the right cabling solution to meet specific needs. We can design a solution that accounts for various specifications including configuration, radiation resistance, length of conduit, number of conductors and diameter of cabling. AREVA NP works with manufacturers to source and procure cabling.

### AREVA NP Solution

AREVA NP is uniquely qualified and has extensive experience with the design and supply of specialty cable assemblies for the nuclear power industry including power cables for pressurizer heaters. We have supplied pressurizer heater power cables as original equipment for many nuclear power plants, and have actively supplied replacement specialty cable assemblies for various plant designs since the mid-1980s. We have recently completed the design, fabrication and supply of 126 pressurizer heater cables for a nuclear power plant located in the Southeastern United States.

AREVA NP can ensure the cable-to-heater interface is compatible and meets the overall plant requirements for the pressurizer heater circuitry.



### Customer Benefits

With AREVA NP's experience with the design and manufacture of pressurizer heaters, AREVA NP can:

- Perform the design process to optimize the heater cable assembly design to provide the required heater interface, power requirements, and meet the plant environmental design and operating conditions.
- Collaborate with our cable suppliers to utilize their extensive expertise with specialty cable applications for the nuclear power industry
- Work with our customers to define the plant interface requirements and required cable configuration and sizing
- Upon request, develop Cable Design Requirements documents for customer specific heater applications, design change packages, and heater cable installation and testing.

## Technical Design

The cable recommended for the pressurizer heaters is an inorganically insulated cable specifically designed for use as a pressurizer heater power lead in nuclear reactors. This Class 1E (non-LOCA) rated cable has superior high temperature performance and is capable of withstanding extremely high radiation exposures. The cable has flexible strand, nickel-coated copper conductors, high grade Mica tapes and has an overall glass braid with a high temperature finish.

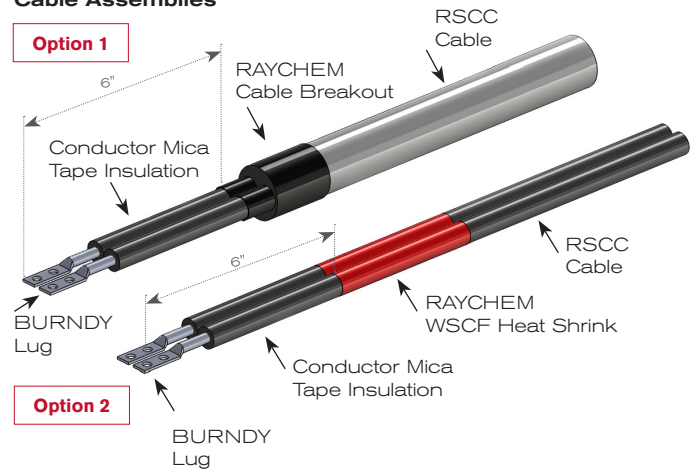
The cable has a 40-year thermal life expectancy at 250°C and meets IEEE-383 1974 70,000 BTU/hr vertical flame test. Optional construction can include a stainless-steel over braid for additional abrasion resistance. Final configuration would be developed in conjunction with plant requirements and the assembly drawings would be submitted for customer approval.

## Features

- 40-year thermal life expectancy at 250°C (minimum 5 years @ 400°C)
- Radiation resistant (up to 1000 megarads)
- Class 1E rated with full traceability (non-LOCA)
- Flame retardant
- Extremely flexible for installation ease
- Easily stripped for termination ease
- Nickel-coated copper conductors for improved corrosion resistance and temperature endurance

## RSCC (Rockbestos Surprenant Cable Corporation)

### Pressurizer Heater Cable Assemblies



*RSCC Micatemp® PHC is an inorganically insulated cable specifically designed for use as a pressurizer heater power lead in PWR nuclear reactors. This Class 1E (non-LOCA) rated cable has superior high temperature performance and is capable of withstanding extremely high radiation exposures. The cable is also available with stainless steel armor for ruggedized applications.*

## Performance Standards

- UL listed for AWM Style 5107
- Passes IEEE-383 1974 70,000 BTU/hr vertical tray flame test
- Quality Assurance program in accordance with 10 CFR 50 Appendix B

## Construction

- **Conductor:** Flexible strand, nickel-coated copper
- **Insulation:** High grade reinforced MICA tapes
- **Overall Covering:** Glass braid with high temperature finish



Scan to view our parts on the web:  
[www.us.aveva-np.com/cisweb](http://www.us.aveva-np.com/cisweb)

**AREVA Inc.**

**Lew McKeague**

Manager, Business Operations and Product Development

Nuclear Parts Center

Mobile: 434.841.4878

After-hours Phone: 434.610.3880

[Lew.McKeague@areva.com](mailto:Lew.McKeague@areva.com)

[www.us.aveva-np.com/cisweb](http://www.us.aveva-np.com/cisweb)

[areva-np.com](http://areva-np.com)

Micatemp® is a registered trademark of RSCC Wire and Cable. The data and information contained herein are provided solely for illustration and informational purposes and create no legal obligations by AREVA. None of the information or data is intended by AREVA to be a representation or a warranty of any kind, expressed or implied, and AREVA assumes no liability for the use of or reliance on any information or data disclosed in this document. ©2017 AREVA Inc. All rights reserved.