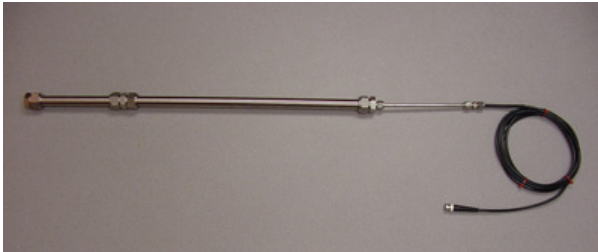


## High Temperature Reference Electrode

# INTRODUCTION

Corrosion of steel in elevated temperature aqueous environments is a significant problem in many industries. Therefore, high-temperature/high-pressure reference electrodes are needed for various corrosion measurements such as polarization, galvanic corrosion, electrochemical noise measurement, and electrochemical corrosion potential (ECP) measurement. A high-temperature/high-pressure reference electrode has been developed for applications in the primary system of operating nuclear power plants. The electrode has been designed to operate in high radiation environments and is capable of withstanding rapid temperature and pressure transients.



*MPM High Temperature Reference Electrode*



*MPM High Temperature Reference Electrode Installed in Piping System*

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# SYSTEM FEATURES

The MPM high temperature reference electrode has the following features:

- The reference electrode is a pressure balanced external reference electrode

2161 Sandy Drive

State College, PA 16803-2283

[www.MPMTechologies.com](http://www.MPMTechologies.com)

USA

Office (814) 234-8860

FAX (814) 234-0248



- The thermal liquid junction potential is accounted for in the conversion of the measured potential to the standard hydrogen electrode (SHE) scale
- Software is provided for continuous data acquisition and determination of the potential versus SHE scale at temperature
- The electrode can operate continuously in normal water chemistry, hydrogen water chemistry, or in aqueous environments with chemical additions to control corrosion
- The electrode is capable of continuous operation at 290°C for over 2 years before replacement
- The electrode can operate at pressures in excess of 2,000 psig
- The electrode can withstand rapid depressurization events as well as thermal ramps of up to 485°C per minute

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## **SYSTEM UPGRADES**

The high temperature reference electrode can be provided with several options:

- Miniature pressure vessel for research or plant applications
- Flow grabber attachment for in-service piping applications where flow rates are too high for direct installation of the reference electrode
- Data acquisition system with computer and software

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## **FOR MORE INFORMATION**

If you would like a price quotation or additional information concerning MPM's services or products, please contact us at the below listed address:

Address:	<b>MPM Technologies, Inc.</b> 2161 Sandy Drive State College, PA 16803
Individual:	Dr. Michael P. Manahan, Sr.
Phone:	814-234-8860 (extension 121)
FAX:	814-234-0248
Website:	<a href="http://www.MPMTechnologies.com">www.MPMTechnologies.com</a>
Email:	<a href="mailto:MPManahan@MPMTechnologies.com">MPManahan@MPMTechnologies.com</a>

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