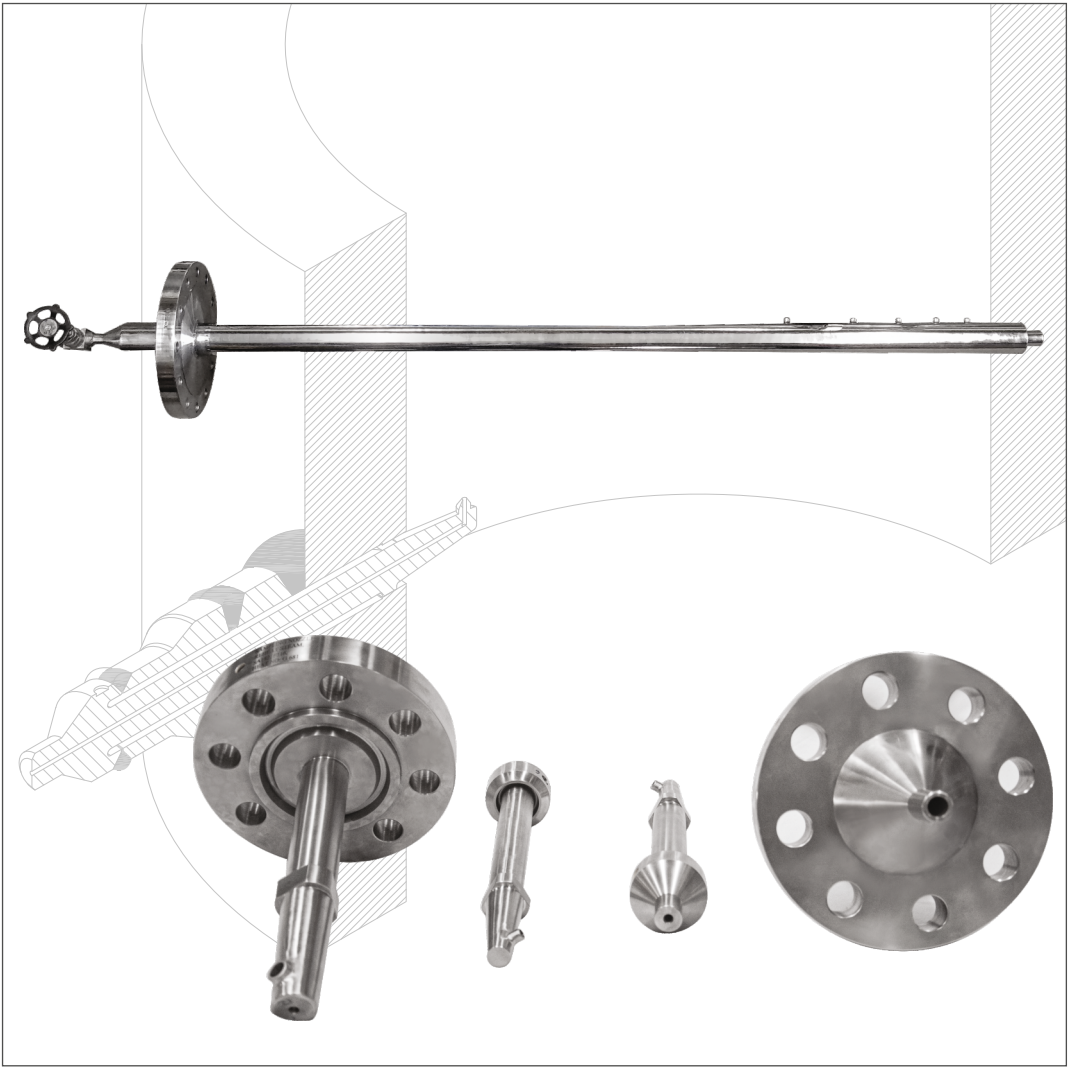
Isokinetic Sample Probes and EPRI Nozzles for Steam and Water



Energy Conservation | Environment | Process Efficiency

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Isokinetic Sample Probes and EPRI Nozzles for Steam and Water

Steam chemistry which mainly includes silica, conductivity, pH, chloride and fluoride, plays a major role in corrosion of high pressure boilers and turbines.

These impurities attack the HP, IP and LP turbines, leading to blade erosion and corrosion. Stress corrosion cracking (SCC) of turbine blades is also a result. Thus impure steam can severely erode your profitability.

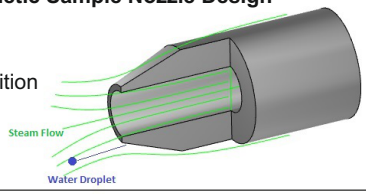
A well designed steam and water analysis system (SWAS) monitors the health of a power plant 24 hrs a day, 7 days a week. Proper analysis starts with proper extraction of samples.

Isokinetic probes from Forbes Marshall are designed to meet SWAS requirements as the per ASTM D1066.

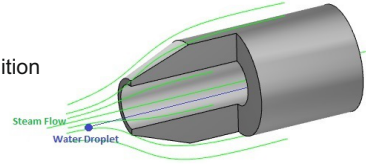
Introduction

Effect of Non-isokinetic Sample Nozzle Design

Case#A
Greater than
Isokinetic Flow Condition



Case#B
Less than
Isokinetic Flow Condition



Isokinetic probes from Forbes Marshall are designed to extract saturated and superheated steam samples isokinetically at high temperatures and pressures, enabling extraction of representative samples from the process steam lines. This helps to immediately assess water chemistry, and take corrective action where required.

Features

Designed as per ASTM / EPRI and VGBs standards for steam and water analysis

Suitable for high pressure and temperatures in super critical power plants

Rugged design, highly resistant to thermal and hydraulic stress

Easy to install on pipelines

Benefits

Extraction of representative samples straight from process (steam and water) pipelines, for quick, precise analysis of water chemistry parameters

Avoids boundary effect

Representative sampling of corrosion products from boiler and heat exchangers-

Accurate measurement of carryover effect in saturated steam

Available in different material options

Easy to install

Standards

American

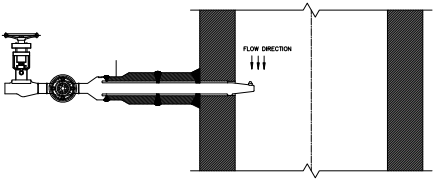
ASME PTC 19.11-2008(section 3)
Steam Sampling ASTM D1066
Water Sampling ASTM D3370

European

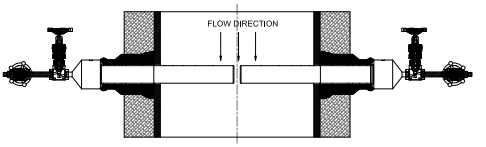
VGB –S-006-00-2012-09-EN

Fixed Probes for Steam and Water Application

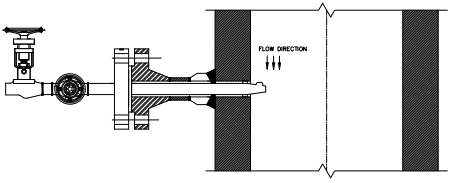
Single Port Nozzle / Probes
Welded Mounting



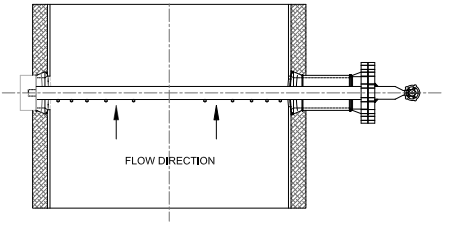
Multiple Port Nozzle / Probes
Welded Mounting (With Two Probe Design)



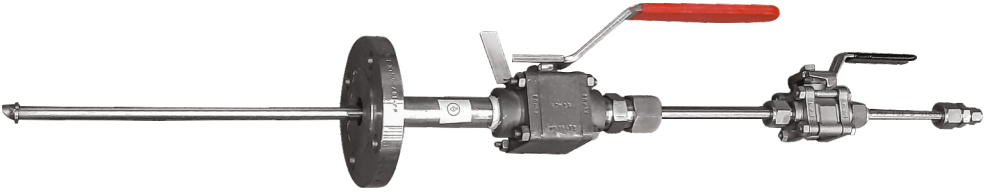
Flanged Mounting



Flanged Mounting (Single Probe Design)



Withdrawable Probes Low Pressure Condensate and Water Application



Questionnaire : Fixed Probes for Steam and Water Application

Fill in the form, detach it and mail it to the address on the back

Steam pressure (kg/sq.cm) _____

Steam temperature (°C) _____

Steam condition(saturated/superheated) _____

Steam pipe size (Inch) _____

Steam pipe line thickness (mm) _____

Material for steam pipeline _____

Insulation thickness (inch) _____

Steam mass flow rate in main pipeline (Kg/H) _____

Sampling mass flow rate for analysis (Kg/H) _____

Sample Line End connection _____

Questionnaire : Withdrawable Probes Low Pressure Condensate and Water Application

Fill in the form, detach it and mail it to the address on the back

Water pressure (kg/sq.cm) _____

Water/Condensate temperature (°C) _____

Process/Water pipe line size(Inch) _____

Process/Water Pipe Line Thickness (mm) _____

Size of Flange connection for Probe Mounting _____

Insulation Thickness (Inch) _____

Water Mass flow rate in Main Pipeline (Kg/H) _____

Sampling mass flow rate for analysis (Kg/H) _____

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