Hydrogen Probe



- Real-time ppm hydrogen analysis using Sieverts' Law principles
- Integrated vacuum pump enables rapid gas extraction process
- TCD sensor delivers precise thermal conductivity-based readings
- Durable design withstands harsh molten steel environments
- Compatible with vacuum treatment and continuous casting setups
- Fast response time supports dynamic process control decisions
- Designed for high-grade steel defect prevention and QA

Product Overview

DKKI Hydrogen Sampling Probe is a precision instrument designed for real-time hydrogen measurement in molten steel, especially during vacuum treatment and continuous casting. Hydrogen activity is a key contributor to defects like blowholes and embrittlement in premium steel grades. This probe uses an open-loop system to establish gas-liquid equilibrium, enabling ppm-level hydrogen analysis based on Sieverts' Law. Its dual quartz tube design ensures stable carrier gas flow, while a sintered splash shield protects against slag intrusion. A vacuum pump extracts the equilibrated gas mixture for analysis via a thermal conductivity detector (TCD), delivering fast, repeatable, and accurate hydrogen readings essential for quality steel production.

Key Features

- Dual quartz tube ensures stable gas-liquid equilibrium interface
- Inert gas purge maintains consistent hydrogen sampling conditions
- Sintered splash shield blocks slag and molten metal intrusion

Why DKKI

- Proven success for over three decades
- ISO 9001:2015 certified quality
- In-house testing under real operating conditions
- Free expert support and comprehensive training
- On-site consulting and troubleshooting
- Fast order processing with flexible logistics
- Standard products, customizable options
- Transparent partnerships that build trust
- Proactive customer engagement

Application Areas

- Vacuum-treated steel requiring precise hydrogen concentration control
- Continuous casting operations needing real-time hydrogen monitoring
- Special steel grades sensitive to hydrogen-induced defects
- Metallurgical labs validating hydrogen levels in molten steel
- Foundries optimizing gas content for structural steel integrity

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Technical Specifications

Parameter	Description
Probe Structure	Dual quartz tubes for coaxial gas flow
Carrier Gas	Nitrogen or argon continuously purged
Splash Shield	Sintered element blocks slag and splashes
Measurement Principle	Sieverts' Law-based hydrogen equilibrium
Gas Extraction	Vacuum pump draws equilibrated gas mixture
Sensor Type	Thermal conductivity detector (TCD)
Response Time	Rapid analysis for real-time process control
Operating Environment	Molten steel during casting or vacuum treatment
Hydrogen Output	ppm-level concentration via conductivity change
System Compatibility	Integrates with steel QA and casting systems
Storage Conditions	Dry environment avoid direct sunlight and corrosive fumes
Shelf Life	2 years under proper storage conditions

Packaging Information

Probe Length	Probes per Pack	Packs per Pallet	Probes per Pallet
1000 mm	12	15	180

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