Coal Plastometer Thermocouple Plastometric Layer Temperature Sensor

Item Number: KT-JZDO

Introduction

Engineered for precise coal coking evaluation this premium coal plastometer thermocouple delivers exceptional thermal responsiveness and rigorous compliance with plastometric testing standards ensuring dependable monitoring of plastic layer thickness across demanding metallurgical petrochemical and coal quality inspection laboratories worldwide

Learn More

Application	Description	Key Benefit
Sapozhnikov Plastometric Index Determination	Integrated into standard horizontal or vertical plastometers to measure the maximum thickness of the plastic layer (y-value) and final contraction (x-value) of bituminous coal samples during regulated heating.	Delivers class-leading thermal accuracy ensuring strictly repeatable coal quality indices and seamless compliance with international standards.
Coking Plant Blend Optimization	Deployed in coking plant analytical laboratories to evaluate coking properties and swelling dynamics of multi-component coal blends before feeding into commercial coke oven batteries.	Eliminates cross-charge quality variance, prevents dangerous oven wall swelling pressures, and reduces overall blend formulation costs.
Coal Exploration and Basin Classification	Utilized in geological survey laboratories and mining assay facilities to benchmark freshly extracted coking coal seams and categorize metallurgical coal reserves.	Provides ultra-reliable temperature data curves necessary to determine precise plastic range margins and thermoplastic longevity.
Steel Mill Quality Control and Receiving Inspection	Installed in metallurgical steelworks receiving stations to perform rapid verification of incoming merchant coking coal shipments against commercial contract specifications.	Accelerates batch release, minimizes operational disputes, and guarantees consistent coke reactivity and mechanical strength parameters.
Carbonization Research and Pyrolysis Kinetic Studies	Applied in academic institutes and carbon research centers to measure micro-temperature differentials and heat consumption during coal thermal decomposition and mesophase formation.	Yields high-frequency thermal response curves suitable for advanced kinetic modeling and thermodynamic reaction analysis.
Coke Oven Diagnostic Testing	Employed in pilot-scale movable-wall test ovens to profile heating homogeneity and heat conduction through coal cakes undergoing simulated industrial carbonization.	Guarantees durable physical performance under heavy volatile gas release and dynamic coal swelling stresses.

Specification Parameter	KT-JZDO Standard Configuration	KT-JZDO Heavy-Duty Armored Variant
Item Number	KT-JZDO	KT-JZDO-HD
Sensor Thermoelement Type	Type K (NiCr-NiSi) Class 1	Type K (NiCr-NiSi) Special Limits of Error / Type S Option
Nominal Measurement Range	Ambient to 800°C	Ambient to 1000°C
Maximum Intermittent Temperature	900°C	1150°C
Thermocouple Sheath Material	310S Heat-Resistant Stainless Steel	Inconel 600 / Incoloy 800H Alloy
Sheath Outer Diameter	3.0 mm (Optional: 2.0 mm, 2.5 mm)	3.2 mm (Optional: 4.0 mm)
Sheath Immersion Length	250 mm / 300 mm (Customizable)	250 mm / 300 mm / 350 mm
Internal Insulation Medium	High-Purity Compacted MgO (≥ 99.4%)	Ultra-Pure Electro-Fused MgO (≥ 99.6%)
Response Time (t0.5 in Water)	≤ 1.2 seconds	≤ 1.5 seconds

Specification Parameter	KT-JZDO Standard Configuration	KT-JZDO Heavy-Duty Armored Variant
Response Time (t0.5 in Air Flow)	≤ 15 seconds	≤ 18 seconds
Cold Insulation Resistance	≥ 1000 MΩ at 500V DC (20°C, 60% RH)	≥ 1000 MΩ at 500V DC (20°C, 60% RH)
Hot Insulation Resistance	≥ 5 MΩ at 800°C	≥ 10 MΩ at 900°C
Thermal EMF Accuracy Tolerance	±1.5°C or ±0.0040 ×	t
Measuring Junction Geometry	Insulated / Ungrounded	Insulated / Ungrounded with Reinforced End Cap
Extension Lead Wire Type	High-temperature flexible braided thermocouple wire	Stainless steel overbraided PTFE/Fiberglass shielded wire
Extension Lead Length	1.5 meters standard (Customizable up to 5 m)	2.0 meters standard (Customizable up to 10 m)
Transition Sleeve Specification	Stainless steel pot with anti-strain relief spring	Heavy-duty threaded hex coupling with strain-relief armor
Compatible Standards	GB/T 479, ISO 15585, ASTM D2639 Equivalent	GB/T 479, ISO 15585, DIN 51739 Equivalent