

1. HTPZ-8 Free Crucible Swelling Index Tester



HTPZ-8 The free swelling index tester consists of a programmable microcomputer temperature controller and a swelling index electric furnace. It is used to determine the swelling index of bituminous coal in crucibles in accordance with the requirements of the national standard “GB/T5448-2014 Determination of Swelling Index of Bituminous Coal in Crucibles – Electric Heating Method” , so as to judge the caking property of coal.

Place the coal sample in a self-expanding crucible and heat it to $(820 \pm 5)^\circ\text{C}$ according to the specified procedure. Compare the obtained coke block with a set of numbered standard coke block side profile diagrams, and take the closest coke type number as the crucible swelling number. This method is applicable to coal, coking departments and scientific research institutions. The instrument uses resistance wires as heating elements and aluminosilicate fiber cotton as thermal insulation materials, featuring fast heating rate and low energy consumption. It is equipped with a coke measuring observation tube, which can directly compare the obtained coke block with a set of numbered standard coke block side profiles.

Technical Parameters:

1. power: Not more than 1000W;
2. Temperature measurement range: Room temperature ~ 999°C
3. Accuracy: Class 0.5
4. Resolution: 1°C

5. Thermocouple: Armored nickel-chromium K-type thermocouple;
6. Time measurement range: 0 ~ 999min(99min59s)
7. Timing accuracy: $\pm 30s/24h$
8. resolution: 1min
9. Heating requirements: Meet the requirements of the national standard GB/T5448-2014
10. power supply: 220 (1 \pm 10%) V 50Hz
11. Dimensions: Stove: diameter 225mm, height: 260mm
12. weight: 10kg
13. Controller: 350 (length) \times 300 (width) \times 150 (height) mm
14. Weight: 4kg
15. Meet the standards: GB/T5448-2014 and ASTM D 720

Device configuration:

1 controller, 1 furnace body, 2 thermocouples, 5 crucibles, 2 electric furnace wires, 1 electric furnace plate, 1 connecting wire, 1 crucible tongs, 1 quartz thermostatic dish, 1 focal observation tube.

2.HT-L50vertical magnetic separation tube



HT-L50 Magnetic Analysis Tube, also known as Davis Tube, is suitable for laboratories in coal preparation, mining, metallurgy, geology and other fields. It is used to determine the content of magnetic components in strongly magnetic ores and provide reference data for the separation of these ores.

Main technical parameters:

Basic Parameters		Performance indicators	Remarks
Magnetic field parameters	Pole distance	52mm	
	magnetic field strength	350mt	Stepless adjustment
Parameters of the glass tube	diameter	50mm	
	Oscillation frequency γ	70 times per/ min	
	Mobile itinerary L	40mm	
Sample particle size		0.5mm	

Electric Motor	Voltage	380V	
	electric current	0.8A	
	Power	250W	
Machine weight		200KG	
Overall dimensions		740×720×630mm	

Working principle:

The HT-L50 magnetic analysis tube consists of a glass tube installed between the two poles of a [shaped electromagnet, which can perform reciprocating movement and swinging. When the sample to be sorted passes through the magnetic field area, magnetic substances adhere to the tube wall, while non-magnetic substances are washed out by water during mechanical movement.

3.HTXFD Laboratory Flotation Machine



The laboratory – use series flotation machines are intended for industries such as geology, metallurgy, building materials, and chemical engineering. They utilize flotation methods to obtain the required laboratory flotation ore samples. These machines are suitable for the separation of non – ferrous and ferrous metals, and can also be used for the separation of non – metallic minerals such as coal, fluorite, and talc. The main shaft of the machine has three types, and the scraper has two different speeds for selection. The whole machine is compact, corrosion – resistant, aesthetically pleasing in appearance, and easy to operate.

Specificationproject	HTXFD-0.5	HTXFD-0.75	HTXFD-1	HTXFD-1.5	HTXF D-3	HTXFD-8
Slot selection volume (L)	0.5	0.75	1	1.5	3	8
Impeller diameter (mm)	Φ45	Φ55		Φ50	Φ60	Φ70
Impeller rotational speed (r/min)	2590 2100 2340 1900 2130 1700			1910 1750 1590	1890 1708 1544	1400
Scraper rotation speed (r/min)	30					

Mining intensity (MM)	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
motor (W)	2800 (r/min) 75W			6342 1410 (r/min) 250W		
Overall dimensions (mm)	502*263*628		570*263*668	560*310*590		380*505*970
weight (kg)	30		33	50		72

4.HTGJ-6 Coal Low Temperature Dry Distillation Tester



The Gray-King Low-Temperature Distillation Tester is an upgraded product developed by our factory. It is primarily used in coal mine laboratories, coal coking industries, and related teaching, research, and quality supervision institutions to analyze the physicochemical indicators of lignite and bituminous coal, such as tar yield, semi-coke yield, and distilled water yield.

The Gray-King low-temperature distillation test is a comprehensive multi-indicator experiment. It not only evaluates the caking property (coke type) but also measures the yields of semi-coke, tar, and total water from the distillation products. According to GB/T1341 "Gray-King Low-Temperature Distillation Test Method for Coal", the basic principle involves placing a coal sample in a glass distillation tube, inserting it into a preheated furnace at 300°C, and heating it under anaerobic conditions at a rate of 5°C/min. The distillation temperature ranges from 300–600°C, with a 15-minute holding period. The yields of semi-coke, tar, and total water are measured, and the semi-coke is compared with standard coke types for classification.

Features:

1. **Furnace Body:** Cast from bronze alloy (5:2 copper-tin ratio) for balanced heating.

2. **German Heating Rods:** Arranged in series to ensure temperature variation $<1^{\circ}\text{C}$ and control accuracy $<3^{\circ}\text{C}$.
3. **Temperature Controller:** Intelligent LED display.
4. **Eight Cross-Arranged Heating Rods:** Ensure uniform furnace temperature:
Rods I & VIII: 0.45 kW
Rods II & VII: 0.35 kW
Rods III & VI: 0.30 kW
Rods IV & V: 0.10 kW
5. **Temperature Control Accuracy:** $\pm 1^{\circ}\text{C}$.
6. **Four-Channel Heating:** Simultaneously tests 1–4 samples.
7. **Safety Protections:** Leakage, power failure, and short-circuit protections.
8. **Rated Power:** Average 0.6 kW per heating hole (I: 0.65 kW, II: 0.53 kW, III: 0.56 kW, IV: 0.66 kW).
9. **Power Supply:** AC 220V \pm 10%, 50 Hz.
10. **Programmable Temperature Control:** Time-based heating curves; built-in printer for data recording.
11. **Alerts:** Over-temperature alarm, buzzer notification, and automatic power-off with indicator light upon completion.

Technical Parameters:

1. Gray-King Distillation Furnace:

Four-hole box-type resistance furnace

Constant temperature zone $\geq 200\text{mm}$

Program-controlled automatic temperature regulation with minimal fluctuation

2. Distillation Temperature:

Operating range: $300\text{--}600^{\circ}\text{C}$

Maximum range: Room temperature to 800°C

3. Distillation Tube:

4. Made of heat-resistant glass

5. Conical Flask:

Capacity: 250mL

Equipped with ground joint for connection to moisture measuring tube

6. Moisture Measuring Tube:

Range: 0-10mL

Graduation: 0.05mL

Ground joint design

7. Condenser:

Straight-tube type

Ground joint connection

Condensing section length ≥ 300 mm

8. Push Rod:

Metal construction

5.HTJX-2 Coal Slag Determination Instrument



The **HTJX-2 Slagging Tendency Tester** is a specialized instrument developed in accordance with the national standard GB1572-89 (Method for Determination of Coal Slagging Tendency). It is designed to measure the ease with which coal forms slag during gasification or combustion processes. Widely used in coal, metallurgy, and power industry laboratories, this instrument is particularly valuable for coal-fired facilities (e.g., boilers) to pre-evaluate slagging risks and guide coal selection for optimal operational efficiency.

Working Principle:

- 1. Sample Preparation:** Coal samples (3–6 mm granules) are loaded into the gasification chamber.
- 2. Ignition:** Samples are ignited using charcoal of the same granularity under controlled airflow.
- 3. Combustion:** After complete combustion, airflow is stopped, and the residue is cooled, weighed, and sieved through a 6 mm mesh.
- 4. Calculation:** The **slagging rate** is determined by the weight percentage of residue >6 mm relative to the total residue.

Technical Specifications:

1. Should be matched with a blower: air volume $\geq 12\text{m}^3/\text{h}$, air pressure $\geq 1000\text{mmHg}$;
2. Coal sample particle size: 3 -6mm
3. The sample size is 400cm³.

Maintenance & Notes:

1. **Regular Cleaning:** Clean the flue chamber, air chamber, and exhaust pipes periodically.
2. **Rust Prevention:** Apply anti-rust measures during prolonged storage.
3. **Spare Parts:** The gasification chamber is consumable and not included as a spare part.

6.HTHX-2 Coal Reactivity Testing Apparatus



Coal reactivity refers to the chemical activity of coal and coke in reducing carbon dioxide under high-temperature conditions, serving as a key indicator of coal's chemical stability. The HX-2 Coal Reactivity Testing Apparatus consists of a silicon carbide high-temperature furnace, thyristor temperature controller, and gas analyzer, featuring rapid heating, superior insulation, precise temperature control, and high sensitivity.

Applications:

Designed for measuring coal's reactivity with CO_2 , this instrument is essential for coal gasification research and widely used in coal and metallurgical laboratories.

Technical Specifications:

Parameter	Specification
Furnace Temperature	Short-term max: 1500°C; Operating range: 1200–1300°C
Uniform Heating Zone	100 mm
Heating Rate	20–25 °C/min (reaches 1200–1300 °C within 1 hour)

Silicon Carbide Tube	Double-threaded, $\Phi 45/35 \times 500/100$ mm
Reaction Tube	Corundum tube, $\Phi 25/20 \times 850$ mm
Controller	Auto-constant temperature control (0–1600°C)
Pyrometer	Platinum-rhodium thermocouple, range 0 – 1600°C (Class 1.0 accuracy)
Power Consumption	4–5 kW
Voltage	220V \pm 20V
Weight	90 kg
Furnace Dimensions	400 \times 460 \times 980 mm (L \times W \times H)
Controller Dimensions	380 \times 450 \times 250 mm
Gas Storage Float Dimensions	360 \times 750 mm

7.HTRD-6 Type Coal Ignition Point Tester



HTRD-6 Type Coal Ignition Point Tester Used for detecting the ignition temperature of coal, with computer control to automatically complete the experiment.

Performance characteristics:

1. The computer and controller engage in bidirectional communication to facilitate comprehensive monitoring

Automatically control and display the temperature of the heating furnace

Automatically measure and display the temperature of coal samples

Automatically plot the curve of furnace temperature variation over time

Automatically plot the curve showing the variation of the difference between coal sample temperature and furnace temperature over time

2. Automatically calculate test results, ensuring accuracy and reliability

3. Store historical test data for querying and printing

4. Computer-controlled display, facilitating analysis and maintenance

5. Complies with the requirements of GB/T 18511-2001

Technical parameters:

1. **Power:** not greater than 1 kW

2. **Temperature measurement range:** 0~600°C

3. **Accuracy:** Level 0.5

4. **Resolution:** 0.1°C

5. **Time measurement range:** 0-999min
6. **Time measurement accuracy:** $\pm 30\text{s}/24\text{h}$; Resolution: 1s
7. **Temperature rise control:** $5^{\circ}\text{C}/\text{min}$ after reaching 100°C
8. **Power Supply:** 220 ($1\pm 10\%$) V, 50Hz

8.HTAY-6 Audibert-Arnu Dilatometer



The Audibert-Arnu Dilatometer is one of the essential coal testing instruments, specifically designed for measuring the swelling index of bituminous coal.

The computer-controlled system adheres to the national standard GB/T5450-1997 for temperature regulation and graphical plotting, displaying real-time coal sample expansion curves.

Features:

Real-time display of control temperature, heating rate, working time, and current opening.

Online operation and control of coal testing processes.

Automatic calculation and printing of:

- Softening temperature (**T1**)
- Initial expansion temperature (**T2**)
- Solidification temperature (**T3**)
- Maximum contraction (**a**)
- Maximum expansion (**b**)
- **Expansion curves and analysis reports.**

Automatic storage of test data for easy retrieval of coal analysis results.

Technical Parameters:

- **Temperature Range:** 0–999°C

- **Accuracy:** Class 0.5, Resolution: 1°C
- **Time Measurement Range:** 0–999 min
- **Time Measurement Precision:** ±30 s/24h, Resolution: 0.1 min
- **Power:** < 5 kW
- **Power Supply:** 220V±10%, 50 Hz

9.HTLY-1 Briquette Cold Compression Strength Tester



HTLY-1 Cold Compression Strength Tester, manufactured by our company, complies with the industry standard MT/T 748-2007 "Test Method for Cold Compression Strength of Industrial Briquettes". It is primarily used to measure the anti-cracking strength of industrial fuel briquettes, raw material briquettes, and other industrial-purpose briquettes under unidirectional force application under specified conditions.

This device features sleek design, user-friendly operation, digital display, and high measurement accuracy, making it widely recognized by users.

Technical Parameters:

1. **Unidirectional force displacement speed:** 12 mm/min
2. **Maximum load capacity:** 0–5 kN
3. **Resolution:** 1 N
4. **Display error:** $\pm 1\%$
5. **Power supply:** 220 V
6. **Weight:** 30 kg

10.HTLX-1 Industrial Briquette Shatter Strength Tester



HTLX-1 Industrial Briquette Shatter Strength Tester is used to determine the crushing resistance of industrial briquettes. The product is designed and manufactured in accordance with the coal industry standard MT/T 925-2004 "Test Method for Shatter Strength of Industrial Briquettes" and references the national standard GB/T 15459-1995 "Test Method for Shatter Strength of Coal."

Sampling and Preparation

Collect briquette samples as per MT/T 915.

Use the long-band method to reduce the sample to 6 kg, ensuring at least 60 briquettes are intact and crack-free.

Air-dry the samples and discard any damaged or cracked briquettes.

Divide the remaining sample into 10 equal sections, randomly selecting 1 briquette from each to form a 10-briquette test group. Repeat to prepare a second group.

Testing Procedure

1. Weigh a test group (accuracy: ± 1 g).

2. Drop each briquette from a 2-meter height onto a steel plate.
3. Screen the fragments after each drop, retaining pieces >13 mm.
4. Repeat the drop-and-screen process 3 times, cleaning the plate between drops.
5. Weigh the remaining >13 mm fragments after the third drop (accuracy: ± 1 g).
6. Calculate the shatter strength using the standard formula.

Instrument Components

- Steel plate & frame
- Marker rod & positioning wheel
- Automatic lifting mechanism (releases briquettes at set height)

Features:

High accuracy & user-friendly operation

Essential for coal quality control

Technical Specifications

- Receiving tray (L×W×H): 1200 × 900 × 200 mm
- Sample tray (L×W×H): 260 × 180 × 130 mm
- Lifting height: 2000 mm (adjustable)
- Power input: 370 W
- Voltage: 220 V $\pm 10\%$, 50 Hz
- Weight: 230 kg
- Dimensions (L×W×H): 1200 × 1100 × 2200 mm

Standard Accessories

- Main unit: 1
- Manual sieves: 2 (800 × 500 mm, 13 mm mesh)
- Electronic scale: 1 (15 kg capacity, ± 1 g accuracy)
- Stainless steel sample trays: 2 (300 × 220 mm)
- Stainless steel sampling scoop: 2 (120 × 100 × 50 mm)

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