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Water drop angle tester G-SDC1500

Release date : 2020-11-21

Droplet Angle testerG-SDC1500Technical parameters(I) OverviewSDC1500, a high temperature and high vacuum contact Angle measuring instrument, is mainly composed of main support, special light source, f

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Droplet Angle tester

G-SDC1500



Technical parameters

(I) Overview

SDC1500, a high temperature and high vacuum contact Angle measuring instrument, is mainly composed of main support, special light source, far focus lens, industrial imaging CCD, high temperature and high vacuum furnace, water circulation cooling system, and special analysis software for vacuum pump. It is applied to test the wetting and spreading properties of various materials by video optics under high temperature and vacuum condition. SDC1500 features simple operation, high heating temperature, stable vacuum extraction, accurate analysis and rich algorithm. The instrument is widely used in the research of ceramic materials, metal materials, fiber welding, aerospace materials, iron and steel smelting, composite materials and so on. (2) Main features

(2.1) Overall support structure: high strength aluminum alloy structure, firm and stable, linear light path design, clear and stable imaging;

(2.2) Optical system: Optical lens with thermal insulation, 6 times optical magnification, continuous zoom, special telecentric lens, suitable for long focal length imaging; The optical system can slide and adjust as a whole, which is convenient for sample placement and operation.

(2.3) Video system: Imported CCD camera system, with clear imaging and real image restoration; Video speeds up to 25 images per second; 1.3 million black and white pixels; USB data transmission;

(2.4) Light source system: Software adjustable, no lag, no stepless adjustment LED white light cold light source, life more than 20,000 hours, suitable for high temperature long-term stable work;

(2.5) Heating system: silicon carbide heating mode, 3KW220V, with electric overload protection device; Digital display intelligent 30 segment programmable temperature control; The highest temperature is 1500°C, and the longest working temperature is 1400°C; Dense alumina ceramic tube, 50x inner diameter 42x length 520mm; (2.6) Temperature measurement: Platinum and rhodium thermocouple temperature measurement; The actual temperature in the heating tube is measured by the platinum-rhodium thermocouple;

(2.7) Cooling system: Water circulation cooling system, which protects the Windows on both sides of the heating tube and other parts of the instrument from overheating; Water flow up to 1440ml/min;

(2.8) Vacuum system: Room temperature can reach 6×10^{-5} Pa; The temperature $\leq 1400^\circ\text{C}$ can reach 6×10^{-6} Pa; Adopt two-stage combination vacuum pump, meet the high vacuum requirement at high temperature; The front stage adopts German technology to manufacture mechanical direct-connected pumps; The rear stage adopts special molecular pump designed by Chinese Academy of Sciences, with small volume and high ultimate vacuum degree. All vacuum pump bodies adopt high purity stainless steel material; Equipped with compound vacuum gauge; Vacuum gauge range: 10^{-6} PA- 10^{-1} PA; The vacuum system can also be protected by inert gas.

(2.9) Sealing system: All valve structures are made of imported sealing materials; Ceramic heating tube with quartz glass Windows on both sides;

(2.10) Analysis method: Automatic fitting measurement methods such as tangent method, width-height method and ellipse method are available; And the manual fitting method and other contact Angle analysis methods; The surface tension was measured by Laplace-Young method.

(2.11) Analysis software: The software can realize video recording/replay, interval photography, instant screenshot and other functions, and realize real-time display of temperature and wettability; The contact Angle and surface tension can be calculated automatically. Automatic export of experimental data report can be realized;

(2.12) Contact Angle standard sample: provide contact Angle standard sample to calibrate the measurement accuracy of contact Angle.

1. Measurement range of contact Angle: 0-180° 2. Measurement accuracy of contact Angle: $\pm 0.1^\circ$ 3. Temperature range: normal temperature -1500°C 4. Cooling method: water-cooled type

5. Light source: industrial LED cold light, life of more than 20,000 hours 6. Vacuum furnace tube size: 50x 42x length 520mm 7. Heating power of electric furnace: 3KW/220V 8. Maximum operating temperature: 1400°C 9. Long-term operating temperature range: RT~1400°C

10. Constant temperature area: furnace tube center area 42xL30mm, $\leq \pm 1^\circ\text{C}$.

Furnace tube center area 42xL40mm, $\leq \pm 1.5^\circ\text{C}$ furnace tube center area 42xL50mm, $\leq \pm 2.5^\circ\text{C}$ 11. System vacuum seal standard: $6.65 \times 10^{-3}\text{Pa}$

12. Temperature control mode: Digital display intelligent 30-segment programmable temperature controller /SCR intelligent module /PID mode; Another 1 digital display thermometer shows the temperature inside the furnace; Temperature measurements were made by single platinum-rhodium thermocouples.

13. Composite vacuum gauge: resistance gauge: range: $10^\circ\text{ PA}-10\text{-Pa}$

Ionization gauge: range: $10\text{ PA}-10\text{ - PA}_\text{—}$

14. Oil immersion pointer vacuum pressure gauge shall be installed in the gas pipeline. The pointer indicating system vacuum degree and system pressure range: $-0.1\text{ mpa} \sim 0.15\text{ mpa}$. 15. When the equipment operates at 1200°C , the cooling power required is 1000W ; Converted to 25°C cooling water flow: 1440 ml/min . 16. Distance between two observation Windows: 736 mm .

Recommended

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Automatic tool metallographic measuring instrument V400

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Automatic tool metallographic measuring instrument V800

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Automatic tool metallographic measuring instrument V1800

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Automatic tool metallographic measuring instrument V2000

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