

RC Reaction Calorimeter

Product Description

The RC simulates factory batch or semi-batch chemical reactions on a liter scale under laboratory conditions. It measures real-time exothermic heat flow in the reactor to obtain thermal behavior data, including total and specific exothermic heat, real-time thermal conversion rate, and material accumulation. It calculates adiabatic temperature rise and maximum temperature after reaction runaway (MTSR). This data is used to assess reaction runaway severity and process hazard level, providing a basis for optimizing and scaling up the target reaction.

Product Features

- Offers three calorimetric methods: heat flow, power compensation, and reflux, for users to choose from based on their requirements.
- Supports various operating modes, including isothermal, constant temperature, and scanning.
- Optional glass atmospheric pressure reactor, glass medium-pressure reactor, and metal high-pressure reactor.
- Features an external device database, enabling one system to support the interchange of multiple reactors.
- High-power heating and cooling units ensure fast temperature control response and high heat measurement accuracy.
- Automatic feeding control, available in mass or volume measurement.
- It can precisely measure and obtain process safety-related data, including reaction heat flow, reaction enthalpy, conversion rate, specific heat capacity of the sample, adiabatic temperature rise, and the maximum temperature that the runaway system can reach.
- The software platform allows flexible creation of experimental procedures, real-time monitoring of key reaction process data, and online modification of experimental procedures and parameters.
- Real-time display of reactor temperature, jacket temperature, feed mass, and other experimental states.
- Critical operational parameters and state-specific safety thresholds are configurable, supporting anomaly detection alarms and automatic shutdown sequences, while initiating immediate rapid cooling protocols upon reaction runaway.
- Automatically generate and save charts and data, and export experimental analysis reports.

Product Specifications

| Parameter | Details |
|--|---|
| Calorimetric Methods | Heat Flow, Power Compensation (Optional), Reflux (Optional) |
| Temperature Control | |
| Vessel Temperature Range | -25–200 °C |
| Oil Bath Temperature Range | -45–250 °C |
| Control Modes | Isothermal, Constant Temperature, Scanning |
| Temperature Resolution | 1.0 mK |
| Sample Temperature Control Precision | ± 0.1 K |
| Silicone Oil Circulation Rate | 35–76 L/min |
| Power Control | |
| Driver Voltage Range | 0–50 VDC |
| Maximum Driver Current | 3.0 A |
| Maximum Heater Power | 120 W |
| Atmospheric Pressure Glass Reactor (Optional) | |
| Reactor Volume | 1000 mL, other volumes available upon request |
| Working Pressure | Working Pressure — Atmospheric Pressure |
| Reactor Material | Glass |
| Medium-Pressure Glass Reactor (Optional) | |
| Reactor Volume | 1000 mL, other volumes available upon request |
| Working Pressure | 0.6 MPa or 1.2 MPa |
| Reactor Body Material | Glass |
| Reactor Lid Material | 316L Stainless Steel or Hastelloy |
| High-Pressure Metal Reactor (Optional) | |
| Reactor Volume | 1000 mL, other volumes available upon request |
| Working Pressure | 10 MPa |
| Reactor Body Material | 316L Stainless Steel or Hastelloy |
| Agitator | |
| Maximum Speed | 2000 r/min, optional 3000 r/min |
| Maximum Torque | 75 N·cm, optional 300 N·cm |
| Agitator Type | Anchor or Blade |
| Agitator Material | PTFE, 316L, or Hastelloy |
| Injection System | |
| Injection Channels | 1 liquid injection, 1 solid injection port, 1 gas injection port; expandable to 4 |
| Precision Balance | Capacity 3100 g, accuracy 0.01 g |
| Injection Pumps | Medium-Pressure Pump: Electromagnetic diaphragm pump, maximum flow rate 2 L/h |
| | High-Pressure Pump: Precision plunger pump, maximum flow rate 2.4 L/h |
| Power Supply | 3*400 V / 50Hz (±10%) / 20 A |

| | |
|----------------------|----------------------------|
| Power | 7000 VA |
| Test Area Dimensions | 1200 mm × 600 mm × 1850 mm |
| Oil Bath Dimensions | 600 mm × 700 mm × 1300 mm |
| Oil Bath Weight | 210 kg |
| Total Machine Weight | 300 kg |



TAC Accelerating Rate Calorimeter

Product Description

The TAC is a professional testing instrument designed to simulate potential thermal runaway reactions under laboratory conditions. It is primarily used in the fields of fine chemicals, pharmaceuticals, energetic materials, organic chemistry, polymers, and plastics for the research and development of chemical processes, process optimization and scale-up, assessment of chemical thermal hazards, investigation and analysis of combustion and explosion accidents, and thermokinetic studies

Product Features

- Supports Heating-Waiting-Search (HWS) mode, isothermal mode, and constant-rate scanning mode.
- Equipped with professional data analysis software that automatically calculates parameters such as heat release onset temperature, adiabatic temperature rise, activation energy, and pre-exponential factor
- The software integrates methods and standards for reaction safety risk assessment, enabling a one-stop evaluation of the hazard level of reaction processes.
- Capable of connecting to an inert gas for rapid cooling of the furnace after the experiment.
- Features experimental status indicators and alarms for overpressure and overtemperature.
- Automatic lifting function of the furnace lid for safety and ease of operation.
- Professional industrial design with a simple and generous appearance, user-friendly human-machine interaction, easy to learn, understand, and operate.
- The data analysis software includes differential conversion rate thermodynamic calculation methods, offering significant advantages in calculating the thermokinetics of thermal decomposition for mixtures and predicting thermal hazards.

Product Specifications

| Parameter | Specification |
|---------------------------------|---|
| Working Environment | 5 °C – 40 °C, < 85% RH |
| Temperature Range | RT – 500 °C |
| Temperature Detection Threshold | 0.005–0.02 °C/min |
| Temperature Tracking Rate | 0.005–40 °C/min |
| Temperature Resolution | 0.001 °C |
| Pressure Range | 0–20 MPa |
| Pressure Resolution | 1 kPa |
| Sample Test Amount | 8 mL |
| Material of Test-cell | Stainless Steel, Titanium Alloy, Hastelloy (optional) |
| Phi | ≤ 1.35 |
| Interface | USB or RJ45 |
| Power Supply | AC220 V/50 Hz |
| Power | ≤ 3000 W |
| Dimensions | 620 mm × 470 mm × 670 mm |
| Weight | Approx. 78 kg |



RSC Rapid Screening Calorimeter

Product Description

The RSC offers calorimetric data in a secure, controlled laboratory environment. It measures temperature and pressure changes during heating and uses numerical analysis to derive key thermal parameters, including reaction onset temperature, exothermic temperature rise, specific heat release, and gas generation volume. This system is ideal for rapidly assessing chemical stability and identifying reaction risks.

Product Features

- Dual-channel design enhances efficiency and accuracy in testing.
- Supports large sample sizes and pressure data not available with DSC/DTA.
- Supports isothermal, scanning, and dual-gradient scanning modes.
- Professional analysis software calculates key parameters such as onset temperature/pressure, peak values, and reaction heat.
- Includes experiment status indication and overpressure/overtemperature alarm functions.
- Allows inert gas connection for rapid post-experiment cooling of the furnace.
- Automatic furnace locking mechanism ensures safe operation conditions.
- Professional industrial design with a sleek and elegant appearance.

Product Specifications

| Parameter | Specification |
|---------------------------|---|
| Operating Environment | 5°C – 40°C, <85% RH |
| Temperature Control Range | RT – 400 °C |
| Heating Rate | 0.5–10 °C/min |
| Temperature Resolution | 0.01 °C |
| Pressure Resolution | 1 kPa |
| Detection Sensitivity | 1% DTBP in 6 mL toluene |
| Sample Cup Capacity | 8 mL |
| Sample Cup Material | Stainless Steel, Titanium, Hastelloy (optional) |
| Interfaces | USB, RS232 |
| Power Supply | AC220 V/50 Hz |
| Power | 800 W |
| Dimensions | 310 mm × 280 mm × 350 mm |
| Weight | 15.5 kg |



DSC Differential Scanning Calorimeter

Product Description

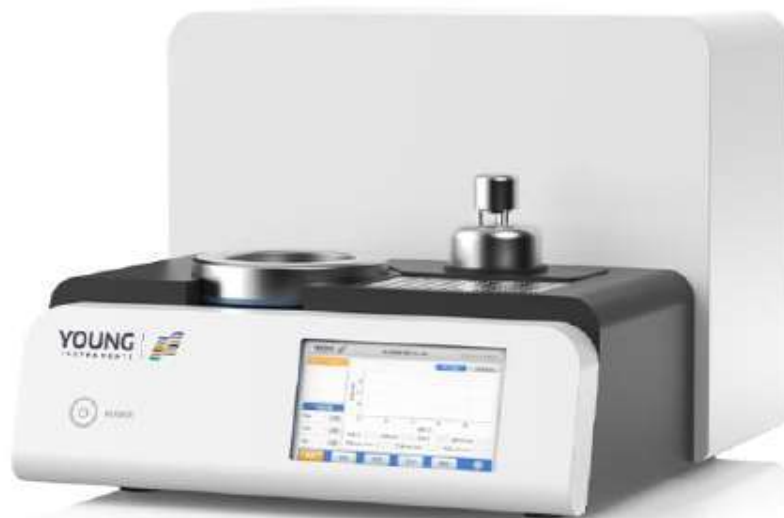
The DSC is a high-performance thermal analyzer based on the tower-type heat flux principle, designed to accurately measure heat flow differences between sample and reference materials under controlled temperature programming. Utilizing milligram-scale samples, it delivers precise measurements of key thermal properties including specific heat capacity, glass transition temperature (T_g), melting point, enthalpy of fusion, reaction heat of thermosetting plastics, curing kinetics, and gel conversion rates. DSC refers to ASTM E2253, ASTM E793, ASTM E794, ASTM E1269, JG 936 and national standards.

Product Features

- Utilizes proven tower-type heat flux technology to enhance instrument resolution and sensitivity.
- High-performance heat flux sensor with oxidation-resistant substrate enables superior sensitivity and dynamic response for precise micro-thermal detection.
- Silver furnace body ensures higher heat transfer efficiency and minimizes reference/sample interference.
- Features are both heating and isothermal control modes.
- Includes DSC analysis functions: Onset Point, Start/End set Points, baseline, heat flow peak, T_g, peak area, enthalpy, peak temp, extrapolated temp, specific heat.
- 50Hz data acquisition frequency enhances sensitivity and resolution.
- Optimized structural design ensures reliable baseline stability and improved SNR.
- Equipped with HD touchscreen for intuitive operation.

Product Specifications

| Specification | Details |
|--|----------------------------|
| Temperature Control Range | RT – 600 °C |
| Heating Rate | 0.1–200 °C/min |
| Temperature Rise Rate Deviation | Better than 1% |
| Phase Transition Temperature Accuracy | ± 0.1 (In) |
| Phase Transition Temperature Precision | ± 0.02 °C (In) |
| Baseline Reproducibility | ≤ 40 μW (without crucible) |
| Thermal Enthalpy Measurement Precision | ± 0.1% (In) |
| Thermal Enthalpy Measurement Accuracy | ± 1% (In) |
| Heat Flow Display Resolution | 0.1 μW |
| Heat Flow Peak-to-Peak Noise | Less than 8 μW |
| Indium Peak Height/Half-Width | 20.0 mW/K |
| TAWN Sensitivity | ≥3 |
| TAWN Resolution | ≤0.12 |
| Heat Flow Measurement Range | ± 750 mW. |



MIE Dust Cloud Minimum Ignition Energy Tester

Product Description

MIE is a professional instrument designed to measure the minimum ignition energy required to initiate a dust cloud explosion. It disperses a specific mass of dust sample into a cloud within a Hartmann tube using compressed air. The dust cloud is ignited with a defined spark energy, and the minimum ignition energy is determined through testing. This system reflects the ignition sensitivity of dust from an energy perspective and is ideal for assessing explosion hazards of dust clouds. The MIE complies with ASTM E2019, IEC 61241-2-3, ISO/IEC 80079-20-2, and GB/T 16428 standards.

Product Features

- Incorporates international testing standards for both standard parameter and custom testing modes.
- Automatic selection of optimal capacitor and voltage combinations based on the entered ignition energy value.
- Automatic high-voltage charging module disconnection for enhanced operational safety.
- Well-designed dust dispersion system ensures uniform dust sample distribution.
- Adjustable electrode distance, powder pressure, and delay time for flexible testing.
- Automatic electrode ignition count recording for timely maintenance and replacement.
- Hartmann tube equipped with lifting and rotating mechanisms for convenient cleaning and time efficiency.
- Remote ignition control ensures the safety of experimental personnel.
- User hierarchy management with multi-level access control.
- USB plug-and-play interface for simplified data management.
- Professional industrial design with a clean and efficient aesthetic.
- Intuitive touchscreen-based human-machine interface for easy operation.
- 7-inch color display supporting multilingual input for user convenience.

Product Specifications

| Parameter | Specification |
|-------------------------------|---|
| Operating Environment | 5°C – 45°C, <85% RH |
| Universal Mode - Spark Energy | 1 mJ, 3 mJ, 10 mJ, 30 mJ, 100 mJ, 300 mJ, 1000 mJ, 3000 mJ |
| Custom Mode - Spark Energy | 1–3000 mJ, adjustable in 1 mJ increments |
| Charging Voltage | 0–15 kV |
| Discharge Load | No load, 1 mH inductive load |
| Experimental Container | 1.2 L Hartmann tube |
| Electrodes | Diameter 2 mm tungsten electrodes |
| Electrode Distance | 2–10 mm, adjustable |
| Electrode Triggering Method | High-voltage relay triggering, movable electrode triggering |
| Ignition Delay Time | 20–200 ms, adjustable |
| Powder Pressure | 0.4–0.7 MPa, adjustable |
| Interface | USB × 2 |
| Power Supply | (90–260)VAC / (47–63)Hz |
| Power | 300 W |
| Dimensions | 840 mm × 500 mm × 850 mm (with exhaust hood), 840 mm × 500 mm × 460 mm (without exhaust hood) |



MITC - Minimum Ignition Temperature Tester for Dust Clouds

Product Description

MITC is a professional tester that determines the ignition sensitivity of dust clouds under specific heating conditions. It is designed for dust explosibility assessment in facilities processing materials such as aluminum powder, zinc powder, plastics, and synthetic chemical intermediates, wheat flour, sugar, wood dust, dyes, Bakelite ash, milk powder, tea dust, tobacco powder, coal dust, and plant fibers. The apparatus precisely measures the minimum ignition temperature of dust clouds.

Standards

- ASTM E1491-06
- EN 50281-2-1
- GB/T 16429
- IEC 61241-2
- ISO/IEC 80079-20-2

Product Features

- Built-in international testing standards for both standardized and customizable parameter testing
- Fuzzy PID temperature control algorithm ensures high-precision temperature management
- Dedicated temperature sensor calibration interface for easy adjustment and correction
- Godbert-Greenwald furnace with integrated quartz tube ensures reliable heating performance
- Furnace chamber made of vacuum ceramic fiber for superior thermal insulation
- Ambient temperature/humidity monitoring with automatic environmental data logging
- Remote operation capability ensures operator safety during experiments
- User hierarchy management enables multi-level access control
- Plug-and-play USB interface for seamless data transfer
- Professional industrial design with clean aesthetics
- 7-inch color touchscreen displays real-time experimental progress

Product Specifications

| Parameter | Specification |
|----------------------------|--------------------------|
| Operating Environment | 5 °C – 45 °C, < 85% RH |
| Temperature Range | RT–1000 °C |
| Heating Time | ≤20 min (RT–500 °C) |
| Temperature Stability | ±5 °C |
| Temperature Accuracy | ±3 °C |
| Temperature Precision | ±0.1 °C |
| Dust Injection Pressure | 0–100 kPa |
| Pressure Accuracy | ±5% |
| Gas Storage Chamber Volume | 500 mL |
| Ambient Temperature Range | -10–60 °C |
| Ambient Humidity Range | 5-95% RH |
| Interfaces | USB × 2 |
| Power Supply | 220 VAC, 50 Hz |
| Power Consumption | 2600 W |
| Dimensions (W × H × D) | 670 mm × 400 mm × 590 mm |



MITL - Minimum Ignition Temperature Tester for Dust Layers

Product Description

The MITL determines the minimum surface temperature required to ignite a dust layer of specified thickness on a heated surface. It is used for dust explosibility assessment in facilities processing materials such as aluminum powder, zinc powder, plastics, chemical intermediates, wheat flour, sugar, wood dust, dyes, Bakelite ash, milk powder, tea dust, tobacco powder, coal dust, and plant fibers, by precisely measuring the minimum ignition temperature of dust in accumulated layers.

Standards

- ASTM E2021
- EN 50281-2-1
- GB/T 16430
- IEC 61241-2
- ISO/IEC 80079-20-2

Product Features

- Built-in international testing standards support both standardized and customized parameter testing
- Intelligent temperature control algorithm ensures high-precision thermal management
- Redundant temperature sensor design guarantees heating reliability
- Dedicated temperature sensor calibration interface for easy adjustment and verification
- Stainless steel heating plate with oxidation and corrosion resistance
- Integrated thermal plane uniformity assessment unit and function
- Rotatable sample thermocouple mount facilitates dust cleaning
- Specialized sampling tools and cleaning tools for convenient operation
- Ambient temperature/humidity monitoring with automatic environmental data logging
- User hierarchy management enables multi-level access control
- Plug-and-play USB interface for seamless data transfer
- Professional industrial design with clean aesthetics
- 7-inch color touchscreen displays real-time experimental progress

Product Specifications

| Parameter | Specification |
|---------------------------|------------------------------------|
| Operating Environment | 5 °C – 45 °C, < 85% RH |
| Temperature Range | RT-450 °C |
| Heating Time | ≤40 min (RT-350 °C) |
| Temperature Stability | ±3 °C |
| Temperature Uniformity | ±5 °C |
| Temperature Accuracy | ±3 °C |
| Temperature Precision | ±0.1 °C |
| Heating Plate | Stainless Steel, φ200 mm |
| Metal Ring | Stainless Steel, φ100 mm |
| Metal Ring Height | 5 mm, 12.5 mm, 15 mm (Three Types) |
| Ambient Temperature Range | -10-60 °C |
| Ambient Humidity Range | 5-95% RH |
| Interfaces | USB × 2 |
| Power Supply | 220 VAC, 50 Hz |
| Power Consumption | 2800 W |
| Dimensions (W × H × D) | 670 mm × 400 mm × 390 mm |



ERD Dust Layer Resistivity Meter

Product Description

Dust layer resistivity refers to the minimum electrical resistance measured between two electrodes that are in contact with a dust layer of a specified contact area and separated by a unit length. This parameter is used to evaluate the electrostatic accumulation capability of dust. It serves as a critical indicator in the design of electrostatic precipitators, electrostatic protection systems, and the determination of the risk of electrostatic ignition of dust. Therefore, it is highly significant for assessing dust safety.

The ERD Dust Layer Resistivity Meter is a professional instrument designed for measuring the resistivity of dust layers. Developed in compliance with standards such as GB/T 16427-2018 and GB/T 3836.12-2019, this instrument ensures adherence to prescribed measurement procedures and ranges. It can be effectively used to assess the risk of bulk material discharge and determine whether specific dust is suitable for use in electrostatic precipitators.

Standards

- GB/T 16427-2018
- GB/T 3836.12-2019
- BS 5958-1 Code of practice for control of undesirable static electricity - Part 1 General Considerations - Appendix A.3 The volume resistivity of a powder
- IEC 60079-32-2
- ISO/IEC 80079-20-2

Product Features

- Built-in common domestic and international testing standards for immediate use.
- Utilizes a high-performance programmable power supply for accurate output of different test voltages.
- Employs an imported picoammeter for precise testing of minute currents.
- Features excellent shielding to effectively minimize the impact of high-voltage radiation.
- Designed with a detachable shield cover for easy sample loading and chamber cleaning.
- Supports interchangeable electrodes to comply with various testing standards.
- Includes temperature and humidity sensors to automatically record environmental data during experiments.
- Offers multi-level user account control for managing operation permissions.
- Equipped with a USB interface for convenient data transfer and management.
- Boasts a sleek, user-friendly, and robust industrial design.
- Features a 7-inch color LCD touchscreen that dynamically displays the experimental process.

Product Specifications

| Parameter | Specification |
|---------------------------------|--------------------------------------|
| Operating Environment | 5 °C – 45 °C, <85% RH |
| Measurement Range | 10^3 to 10^{14} $\Omega \cdot m$ |
| Voltage Range | 0–2 kV |
| Ambient Temperature Measurement | -10–60 °C |
| Ambient Humidity Measurement | 5% RH to 95% RH |
| Interfaces | USB × 2 |
| Power Supply | 220 VAC / 50 Hz |
| Power Consumption | 500 W |

HWP BAM Friction Sensitivity Tester

Product Description

The BAM Friction Sensitivity Tester precisely determines mechanical friction sensitivity in energetic materials, including primary explosives, high explosives, propellants, and pyrotechnic compositions. This instrument is widely implemented across safety engineering applications, transportation sectors, and research/production facilities such as energetic material laboratories, chemical manufacturing plants, pesticide production units, and military research institutions.

Standards

- UN Manual of Tests and Criteria 13.5.1 Test 3(b)(i): BAM Friction Tester
- GB/T 21848-2008
- GB/T 21566-2008
- NY/T 1860.6-2010
- GB 5085.5

Product Features

- Embedded processor with Windows CE OS
- 8-inch LCD touchscreen for real-time test status visualization
- High-precision motion control unit for exact porcelain plate positioning
- Adjustable porcelain plate speed
- Corrosion-resistant friction/load mechanism with reinforced safety
- Fully automated operation with parameter configuration and data logging
- An optional wireless video monitoring system is available to monitor experiments in real-time.
- Features a front-mounted transparent safety shield. An optional exhaust system can be equipped to evacuate explosive gases or dust. The detection unit remains unobstructed and exposed to the atmospheric environment, ensuring a natural oxygen supply.

Product Specifications

| Parameter | Details |
|---|---|
| Operating Environment | -5°C – 40°C, <85% RH |
| Motor Speed | 140±3 rpm (at maximum load) |
| Load Range | 1~2~5~ 10~20~40~60~80~ 120~ 160 ~ 240~360N |
| Load Accuracy | ±0.038 N at 1 N; |
| | ±0.048 N at 2 N; |
| | ±0.080 N at 5 N; ±0.21 N at 10 N; |
| | ±0.45 N at 20 N; |
| | ±0.49 N at 40 N; |
| | ±0.22 N at 60 N; |
| | ±0.27 N at 80 N; ±0.32 N at 120 N; |
| | ±0.37 N at 160 N; ±0.43 N at 240 N; |
| ±0.48 N at 360 N. | |
| Screen Mesh Specification | 35 mesh (optional) |
| Porcelain Surface Roughness | 9-32 μm |
| Distance between Weight and Porcelain Rod Centers | 11cm, 16cm, 21cm, 26cm, 31cm, 36cm |
| Plate Travel Distance | 10 mm |
| Plate Dimensions (L ×W × H) | 25 mm × 25 mm × 5 mm |
| Rod Dimensions (Ø × L) | 10 mm × 15 mm |



HWP Impact Sensitivity Tester

Product Description

The Impact Sensitivity Tester determines impact sensitivity in energetic materials (including solid/liquid high explosives, propellants, pyrotechnic compositions, and primary explosives) and evaluates whether substances are too hazardous for transport in their tested form. The standard refers to UN Manual of Tests and Criteria 13.4.2 Test 3(a)(ii): BAM Drop Hammer, NY/T 1860.6-2010, EN 13631-4:2002, GB/T 21567-2008, GB/T 21848-2008 and GB 5085.5

Product Features

- Embedded processor with Windows CE OS
- 8-inch LCD touchscreen for real-time monitoring
- Wireless remote hammer lifting/positioning to reduce workload
- Remote-controlled hammer release for distant operation
- Self-locking hammer positioning mechanism for simplified handling
- Anti-rebound design to eliminate safety hazards
- Quenched steel hammer head (60-63 HRC hardness)
- Dedicated fixtures ensuring ± 2 mm liquid sample positioning
- Concrete-anchored base plate for maximum stability
- Integrated safety containment chamber
- Customizable test sequences with parameter presets
- Real-time data display with post-test impact energy analysis
- Fully automated operation with data logging and reporting

Product Specifications

| Parameter | Details |
|-----------------------------|---|
| Operating Environment | -5°C – 40°C, <85% RH |
| Drop Weights | 0.5 kg $\pm 0.1\%$, 1 kg $\pm 0.1\%$, 2 kg $\pm 0.1\%$, 5 kg $\pm 0.1\%$, 10 kg $\pm 0.1\%$ |
| Drop Height Range | 0–1000 mm |
| Positioning Accuracy | ± 1 mm |
| Guide Rail Perpendicularity | ≤ 0.1 mm/m |
| Hammer Concentricity | $\leq \phi 0.15$ mm |
| Reference Surface Flatness | ≤ 0.012 mm |
| Impact Energy Range | Impact Energy Range: 0.5–100 J |

