BRK VERTEX Series

Eddy Current Flaw Detector

Technical Solutions



BRK provides professional non-destructive testing solutions. Since its founding, the company has been dedicated to delivering high-quality instruments and expert services to meet customer demands in scientific research, industrial production, quality control, and related fields.

BRK's core strength lies in its continuous technological innovation and superior product quality. The BRK team comprises experienced and highly skilled professionals focused on advancing research and development in non-destructive testing. Combining technical expertise with a commitment to innovation, BRK serves clients worldwide with cutting-edge products and solutions.

BRK specializes in solving complex challenges by offering customized non-destructive testing solutions. As an industry pioneer, the company stays ahead of trends and technological developments. Its product portfolio includes ultrasonic flaw detectors, eddy current flaw detectors, coating thickness gauges, ultrasonic thickness gauges, Leeb hardness testers, surface roughness testers, gloss meters, industrial borescopes, and more. With a strong global reputation, BRK maintains an outstanding customer satisfaction rate of 95.7%.



BRK

One-Stop Supplier of Non-Destructive Testing Solutions

The factory under the BRK brand possesses complete production processes, sophisticated testing methods, and strong R&D capabilities. As a high-tech enterprise specializing in the development, production, sales, and service of non-destructive testing instruments, all products from portable NDT equipment to large-scale automated systems feature independent intellectual property rights. The company has applied for dozens of invention patents, utility model patents, and software copyrights, obtained the Intellectual Property Management System Certification, and was honored as a National High-Tech Enterprise in 2024.

Quality Testing
We collaborate with authoritative quality supervision institutions and utilize the most advanced high-performance testing equipment. All products undergo rigorous testing procedures to ensure stability and compatibility. Our scientific and meticulous quality inspection processes comply with national industry standards.

Quality Assurance
For any quality-related inquiries, we provide product origin certification. For specific customer requirements, we offer comprehensive laboratory testing services.

Quality Commitment
We guarantee top-tier product quality. Every product we provide is manufactured at our original facility, delivered in original packaging, and strictly adheres to professional quality standards. Our standardized, precise, and scientific management and monitoring processes ensure authenticity and premium quality at every stage.











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BRK Website

Part 1: Product Introduction



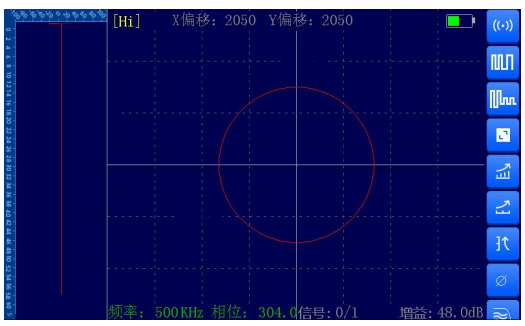
Vertex series Eddy Detector

- High Sensitivity & High Resolution
- Simple Operation, Smart & Efficient
- Precise Detection & Portable Design
- High Signal-to-Noise Ratio & Low Clutter

The VERTEX series eddy current testing instruments stand out due to their adoption of cutting-edge microelectronic digital processing technology, real-time dual-frequency eddy current detection technology, and microprocessor technology. These instruments can effectively and instantly detect defects in metal material components. Featuring an advanced design philosophy with dual-button and jog-dial adjustment, they significantly enhance parameter-setting efficiency.

Compact and user-friendly, the VERTEX series boasts an IP65 waterproof rating, making it resistant to water, dust, and drops, allowing it to thrive in extremely harsh working environments. The instruments comply with standards such as NB/T47013, GB/T27664.1-2012, JB/T10061-1999, EN12668-1:2010, and GB/T11345-2013.

They meet the stringent material quality control requirements in industries including aerospace, petrochemicals, power energy, and rail transportation.



Flaw Detection Interface



CE certificate

Part 2: Product Advantages

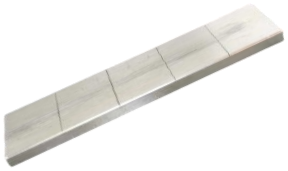
Advanced digital signal processing algorithms effectively suppress noise interference, improve the signal-to-noise ratio, and enable precise detection of minute defects.
Multiple frequency options allow optimization for different materials and testing needs, ensuring optimal inspection results.
A high-resolution LCD screen clearly displays defect signal waveforms and parameters, facilitating defect analysis and evaluation.
Supports multiple testing modes, including absolute, differential, and reflection modes, to meet diverse application requirements.
Built-in standard test blocks and customizable calibration functions simplify instrument calibration and verification.
Compatible with various probes, suitable for inspecting different shapes, sizes, and materials.
Compared to similar products, the VERTEX series offers higher cost-effectiveness, providing users with a more economical solution.

Key Features:

✓ Unique dual-adjustment mode (buttons + jog dial)—simple, convenient, and easy to use
✓ Three probe modes (single-ended, bridge, and coupled) available
✓ Ultra-wide excitation frequency range (10Hz–20MHz)
✓ Adjustable high-end and low-end frequencies for specialized material inspection
✓ Multi-stage gain adjustment, including high and low amplification gains
✓ X/Y-axis bidirectional gain compensation/suppression (adjustable independently)
✓ Smart gate function (automatically ignores non-defect signals) in addition to standard circular, rectangular, and linear gates
✓ Impedance plane and time-base scan display
✓ Direct data/video export to PC via USB—no software installation required
✓ High-definition, high-sensitivity detection
✓ User-friendly operation with selectable Chinese/English interface
✓ Multiple filtering options
✓ USB communication interface for data transfer
✓ Built-in lithium battery supports 8+ hours of continuous operation
✓ IP65 waterproof rating—drop-resistant and shockproof, suitable for harsh environments

Part 3: Application

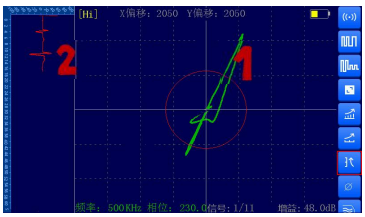
Aluminum Workpiece Defect Inspection



Aluminum Workpiece



Actual Measurement



Flaw Detection Interface

Conclusion: Defects are present on the aluminum workpiece surface. 1 represents the instrument's echo signal, 2 represents the time-base signal. The echo signal exceeds the gate threshold, and the time-base signal shows distinct spike peaks, triggering the instrument's alarm.e

Cast Iron Weld Seam Defect Detection



Cast Iron Welding



Actual Measurement



Flaw Detection Interface

Conclusion: No defects are detected at the cast iron welding location. The echo signal shows no fluctuations beyond the gate threshold, and the time-base signal maintains a steady flat line.

Copper Busbar Transition Weld Internal Defect Inspection



Copper Busbar Transition



Actual Measurement



Flaw Detection Interface

Flaw Detection Interface

Conclusion: Internal defects exist in the copper busbar transition weld. The echo signal exceeds the gate threshold, and during measurement, clear signal fluctuations are observed in the time-base signal zone.

Heating Pump Component Weld Internal Defect Testing



Heating Pump Components



Actual Measurement



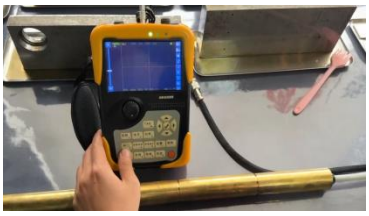
Flaw Detection Interface

Conclusion: Defects are present in the heating pump component weld. The echo signal exceeds the gate threshold, and during measurement, distinct signal fluctuations are visible in the time-base signal zone.

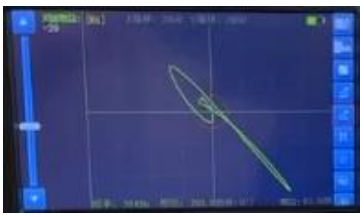
Copper Test Tube Internal Flaw Examination



Copper Test Tube



Actual Measurement



Flaw Detection Interface

Conclusion: Internal defects are detected in the copper test tube. The echo signal exceeds the gate threshold, and during measurement, clear signal fluctuations appear in the time-base signal zone.

Other Applications:



Alloy Steel Surface Inspection



Stainless Steel Flaw Examination



Pipe Fitting Butt Weld Inspection



NdFeB Magnet Crack Testing



Pipeline Defect Detection



Copper Pipe Surface Defect Inspection



Zinc Alloy Surface Examination



Steel Plate Weld Inspection



Circular Butt Weld Examination



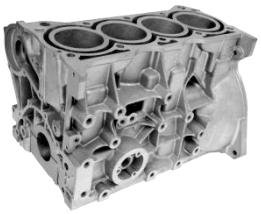
Threaded Hollow Pipe Testing



Turbine Rotor Blade Defect Detection



Aircraft Skin Defect Inspection



Engine Block Flaw Examination



Aircraft Engine Blade Inspection



Heat Exchanger Tube Defect Testing

Part 4: Technical Specifications

Project	VERTEX-60	VERTEX-80	VERTEX-80A
★ Supported Probe Types	Bridge type	Single ended, bridge type	Single ended, bridge type, coupled
★ Incentive Frequency	10Hz~12MHz		10Hz～20MHz
★ Excitation Voltage	0-10v continuously adjustable, with a step size of 0.1		0-12v continuously adjustable, with a step size of 0.1
★ High Amplification Gain	0-50, step 1 continuously adjustable		0-100, step 1 continuously adjustable
Drive	Level 4	Level 8	Level 8
★ Microprocessors	32-bit (dual core)	32-bit (dual core)	64 bit (dual core)
★ Pre-storable Detection Parameters	10,000	100,000	1,000,000
★ Memory	8GB (non expandable)	8GB (non expandable)	64G (expandable up to 1TB)
★ Waterproof Rating	noe	IP54	IP65
★Low Amplification Gain	0-250, step 1 continuously adjustable		
★ Low-end Frequency	0-120, step 1 continuously adjustable		
★ High-end Frequency	0-120, step 1 continuously adjustable		
★ Grid grayscale	10 levels adjustable		
X-axis Gain	-100～100		
Y-axis Gain	-100～100		
High-pass Filter	0～500Hz		
Low-pass Filter	10Hz～10KHz		
Digital Filter	1~100		

★ Filter Type	HR Filter, Smooth Filter selectable
★ Pre-amplification	1x, 2x, 5x, 10x selectable
★ Refresh Time	Levels 1-10 are optional, step 1
★ Bandwidth Limitation	High, medium, and low adjustable
★ Amplitude and Phase Measurement	One click automatic phase adjustment/or manual adjustment
★ Zero adjustment	One click adjustment of zero position
Freeze	Can pause image detection at any time for better analysis
Phase	0-360 degrees
★ Gate Type	Circular, rectangular, straight, intelligent (automatically ignores non defect signals)
Gate Alarm	audible alarm
Balanced Approach	Digital electronic balance
★ Screen Display Mode	Normal and strong light modes (suitable for working under strong sunlight)
★ Data Recording and Management	Stores images and videos, and can directly connect to a PC to export images/videos without requiring software installation. Other Performance Indicators
Other Performance Indicators	
★ Interface Support	Two USB Type-A/B ports
★ Display Screen	5.0 "high brightness TFT color LCD screen, 800 * 480 pixels
Working Temperature Range	-10～+50℃
★ Size and Weight	135 (L) × 54 (W) × 205mm (H); Total weight with battery ≤1kg (~0.95 kg)
External Power Supply	AC:100-240V DC:15V3.8A

Part 5: Probes



Large Weld Probe
Efficiently covers large-area welds
Suitable for continuous inspection of long welds
Applications: Can detect defects such as cracks, lack of penetration, and slag inclusions in long-distance pipeline welds; corrosion-fatigue crack detection in ship hull welds and offshore platform welded structures; weld quality assessment of pressure vessel longitudinal/circumferential seams; fatigue crack detection in steel box girders and truss joint welds.



Small Weld Probe
Specifically designed for tiny, precise, or narrow welding structures
Applications: Typically used for inspecting micro solder joints on circuit boards; defect screening in engine blade micro cooling hole welds and avionics connection solder points; crack or poor connection detection in power battery tab welding and vehicle controller solder joint



Axe-Type Weld Probe (Transverse)
A specialized probe designed for fillet welds, T-joints, or other complex-geometry welds
Fits complex weld shapes with high directivity
Applications: Due to its adaptability and directional precision, the axe-type weld probe is the preferred tool for inspecting complex structures like fillet welds and T-joints, especially in heavy industries such as steel structures, shipbuilding, and pressure vessels.



External Encircling Probe
Commonly used for inspecting long conductive materials like pipes and rods
No direct contact required with the test surface
Capable of detecting 360° circumferential defects
Applications: With its efficiency, non-contact operation, and full-coverage capability, the external encircling probe is the go-to solution for pipe and rod inspection, particularly suited for industrial assembly lines and large-scale testing needs.



Internal Rotary Probe
Designed for detecting internal defects in pipes, holes, or other hollow structures
Tailored for slender tubular structures, capable of inspecting pipes as small as a few millimeters in diameter (e.g., heat exchanger tubes, aerospace hydraulic lines)
Applications: Heat exchanger tube inspection, oil/gas pipeline testing, engine component assessment, boiler tube examination, and condenser tube maintenance.



Saddle-Type Probe
Specifically designed for cylindrical workpieces or curved welds
Customizable by curvature (20, 60, 120 – large, medium, and small arcs, 2 pieces each)
Applications: Thanks to its curved-surface adaptability and full circumferential detection capability, the saddle-type probe is a core tool for inspecting cylindrical workpieces like pipes and shafts, particularly suitable for in-service equipment maintenance in industries such as petroleum, power, and shipbuilding. Its advantage lies in balancing inspection efficiency and precision while eliminating the need for disassembly, significantly reducing downtime costs.



General Pen Probe
Most eddy current probes have a specific detection angle. Depending on inspection requirements, the probe angle should be adjusted based on the relative movement between the probe and the workpiece. The detection surface of the probe should be perpendicular to the surface of the inspected workpiece (for surface-mount or point-type probes). During inspection, the probe should maintain a constant speed and a stable lift-off distance from the workpiece. The optimal lift-off



10mm Pen Probe
Ideal for localized precision inspection or defect screening on complex surfaces
The 10mm point probe, with its high precision and flexibility, serves as a critical inspection tool in industries such as precision manufacturing, aerospace, and power maintenance, particularly excelling in micro-defect localization and complex surface inspection. In practical applications, the inspection frequency and scanning speed should be adjusted based on material thickness and defect type



Right-Angle Pen Probe
Right-angle design allows tight fit in corners, edges, or confined spaces
Applications: Thanks to its spatial adaptability and high sensitivity, the right-angle probe is a key tool for non-destructive testing (NDT) of complex geometric workpieces, widely used in aerospace, energy, and transportation industries where safety is paramount. In inspections of welds, rivet holes, and other intricate structures, the right-angle probe enables rapid defect localization, significantly reducing adjustment time.

Part 6: Test Blocks



Eddy Current Flaw Detector Crack Test Block
Specifications
Product Name: Eddy Current Flaw Detector Crack Test Block
Dimensions (L×W×H): 120×30×6 mm
Material: S45C, Iron, Aluminum
Notch Dimensions (L×W×D):
A: 30×0.2×0.1 mm
B: 30×0.2×0.2 mm
C: 30×0.2×0.4 mm



Eddy Current Flaw Detector Weld Test Block
Specifications
Product Name: Eddy Current Flaw Detector Weld Test Block
Dimensions (L×W×H): Customizable
Material: S45C



Eddy Current Flaw Detector Standard Test Tube
Specifications
Product Name: Eddy Current Flaw Detector Standard Test Tube
Dimensions: Length 500mm × Diameter 25mm
Material: Copper, Stainless Steel, Carbon Steel

Part 7: Packing List *

No.	Item Name	Specification	Qty	Unit
1	Main Unit	Vertex series	1	unit
2	Probe	Vertex series	1	pc
3	Adapter		1	pc
4	Lithium Battery		1	pc
5	Digital Cable		1	pc
6	Carrying strap		1	pc
7	Digital Cable		1	pc
8	Operating Manual		1	pc
9	Warranty Card		1	pc
10	Product Guarantee Card		1	pc
11	Packing List		1	pc
12	Instrument Case		1	pc

* This table is for reference only. Final contents are subject to the actual packing list.

Part 8: Maintenance

- Avoid strong electromagnetic interference.
- Use specified power supply. Do not open casing while powered.
- Cover with dustproof sheath when not in use.
- During humid seasons, power on for 1-2 hours weekly to prevent moisture damage.
- Contact support for troubleshooting; avoid unauthorized repairs.

Part 9: Quality Assurance, After-Sales Service & Training

1. Quality Assurance

The quality assurance period is one (1) year from the date of final acceptance and signing.

2. After-Sales Service

(1) Under normal circumstances, the seller guarantees to respond within 24 hours upon receiving the user's after-sales service request (including a fault description) via phone, fax, or email, providing troubleshooting and fault resolution.

(2) During the warranty period, the manufacturer shall provide free after-sales

service and respond to user notifications within 8 hours.

Part 10: Supplementary Provisions

The seller warrants that the buyer shall not face any third-party claims of patent, trademark, or industrial design infringement while using the purchased testing equipment or any part thereof. If any third party raises an infringement claim, the seller shall handle the dispute and bear all legal liabilities and costs.

This agreement is an integral part of the sales contract. In case of any conflict, the terms of the sales contract shall prevail.

Matters not covered herein shall be resolved through amicable negotiation between both parties.

This agreement becomes effective upon signing by both parties. It is executed in duplicate, with each party holding one copy of equal legal validity. Faxed or scanned copies are equally binding.

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