BRK M-ULTRAL Series

Ultrasonic 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

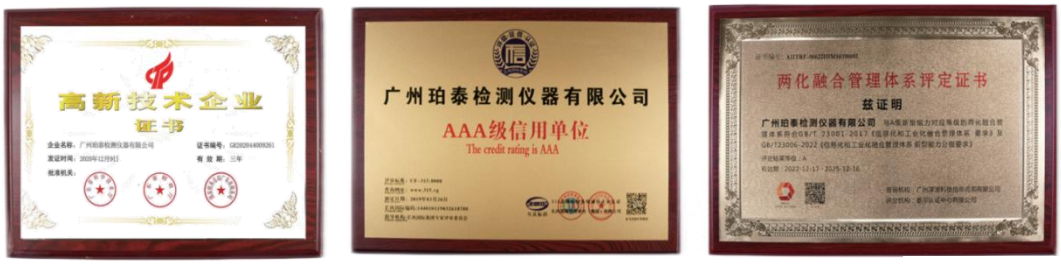
The factory under the BRK brand possesses complete production processes, sophisticated testing methods, and strong R&D capabilities. As a high-tech enterprise specializing in the development, production, sales, and service of non-destructive testing instruments, all products from portable NDT equipment 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



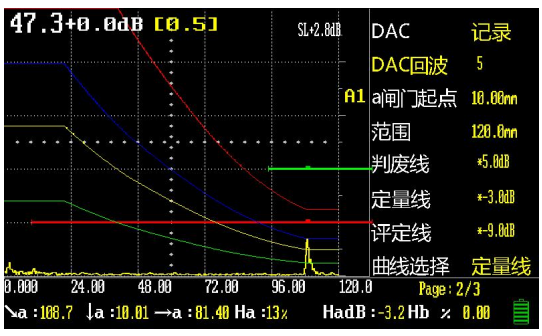
M-ULTRAL series Flaw Detector

- Full-Screen Flaw Detection
- Preloaded with Multiple International Standards
- Smart Analysis with Auto-Alert
- High SNR with Minimal Clutter

The M-ULTRAL Series ultrasonic flaw detector is a new generation of practical testing equipment specially developed by BRK based on customer operating habits. Not only is it user-friendly and efficient, but it also adheres to BRK's philosophy of delivering outstanding performance and industry-leading technology, giving it a significant competitive edge in overall performance and specifications among congeneric products.

Ultrasonic flaw detection is a method that utilizes the ability of ultrasonic waves to penetrate deep into metallic materials and reflect at interfaces when passing from one cross-section to another. This technique detects defects by analyzing reflected waves generated when the ultrasonic beam, transmitted from the probe into the material, encounters flaws or the material's base surface. These reflections form pulse waveforms on the display screen, enabling the determination of defect location and size.

The instrument complies with the following standards:
NB/T47013, GB/T27664.1-2012, JB/T10061-1999, EN12668-1:2010, and GB/T11345-2013.



Flaw Detection Interface



CE certificate

Part 2: Product Advantages

The ANYSCAN series features a compact size and ergonomic grip, paired with a high-brightness display, making it ideal for mobile field operations and elevated work environments. In standard mode, it serves as a versatile ultrasonic flaw detector for inspecting welds, forgings, castings, and other common workpieces.

Key Features:

✔ IP54 Waterproof Rating – Resistant to water, dust, and explosions. In humid environments, prolonged exposure to moisture and dust can accelerate circuit and chip aging, leading to high failure rates in ordinary devices.

✔ Intuitive Operation – Combines a multifunctional jog dial, directional keys, and shortcut buttons for faster menu navigation. Features fully automated parameter recommendations for quick setup and ease of use.

✔ Premium Imported Chips – 100% high-performance imported chips ensure superior accuracy, sensitivity, stability, and lower noise.

✔ High-Definition Industrial TFT Display – Uses a Mitsubishi industrial-grade color TFT LCD (with clarity sharp enough to play videos), unlike most basic monochrome screens on the market.

✔ Smart Dual-Gate Detection – Auto-captures echoes with Gate A/B, enabling one-click calibration for sound velocity, delay, and angle.

Gate A: Fast auto echo tracking

Gate B: Full-screen waveform expansion

✔ Advanced Data Management – Supports 5 groups of 50 channel settings and stores up to 1,000 waveform images.

✔ DAC Curve Quick Selection – Automatically adjusts evaluation, quantification, and rejection lines for flaw assessment.

✔ One-Touch Functions – Instant peak memory, envelope mode, full-screen zoom, and screenshot capture.

✔ High-Speed Sampling & Playback – 400MHz real-time hardware sampling with recording/playback for ultra-realistic flaw detection imaging.

✔ Wideband Low-Noise Amplifier – 20MHz bandwidth supports various probes for high-sensitivity or high-resolution inspections.

✔ Durable Waterproof Key Design – Gold-contact buttons with a 10+ year lifespan.

✔ Compact & Rugged – Waterproof and shockproof, ideal for fieldwork and high-altitude inspections

Auxiliary Features:

✔ Gate-variable alarm, clutter suppression, and noise reduction.

✔ Automatic color differentiation for secondary waves – Prevents defect misjudgment.

✔ Auto-gate defect wave detection.

Part 3: Application

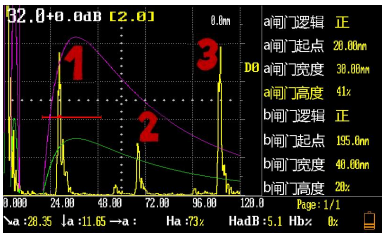
Cast Iron Workpiece Internal Defect Detection



Cast Iron Workpieces



Actual Measurement



Flaw Detection Interface

Conclusion: Internal defects detected. Flaw 1: 28.35mm below probe; Flaw 2: 62.12mm below probe.

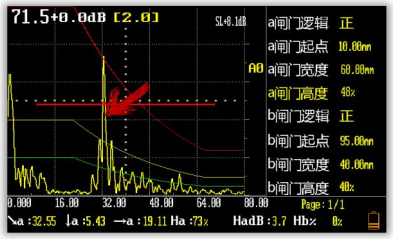
Butt Weld Internal Defect Detection



Butt Welds



Actual Measurement



Flaw Detection Interface

Conclusion: Internal defect detected. Flaw wave exceeds Level 2 weld line. Position: 19.3mm ahead, 5.43mm below probe.

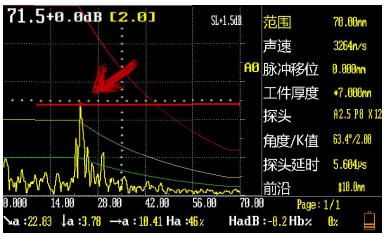
Fillet Weld Internal Defect Detection



Fillet Welds



Actual Measurement



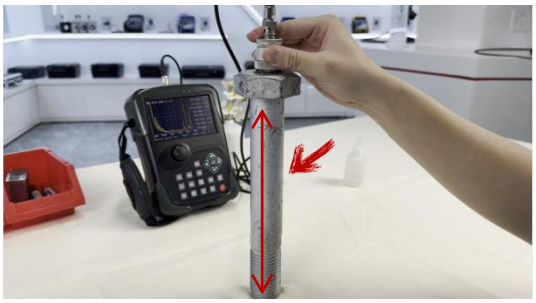
Flaw Detection Interface

Conclusion: Internal defect detected. Flaw wave exceeds Level 1 weld line. Position: 10.41mm ahead, 3.78mm below probe.

Wind Turbine Blade Root Bolt Ultrasonic Internal Defect Detection

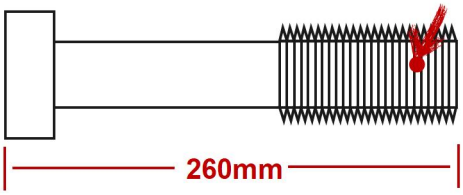
Bolts are fasteners widely used for connections and sealing. Components rely on bolts for structural integrity; a single faulty bolt can cause system failure.



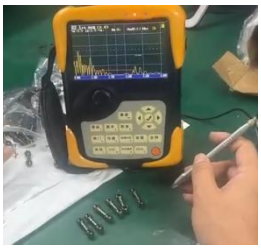




Conclusion: Defect wave detected in bolt.
Instrument: MINI30 Ultrasonic Flaw Detector, Standard Straight Probe
Bolt length: 260mm
Defect position: 231mm



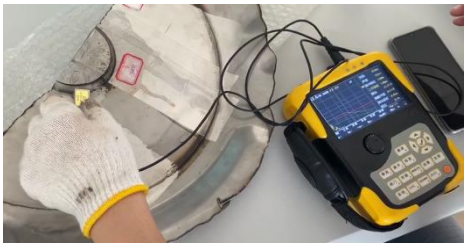
Other Applications:



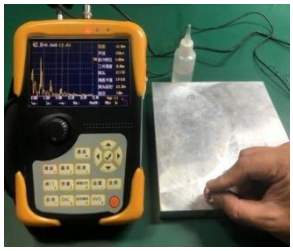
Small Shaft Component



Ultrasonic Testing for Ultra-Thin Welds (Steel



Stainless Steel Weld Inspection



Aluminum Alloy Defect Detection



Flaw Detection for Perforated Ceramic Bottles

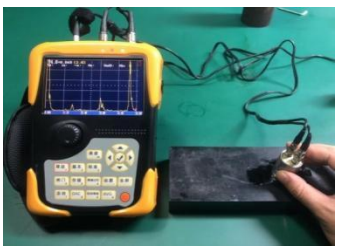




Steel Pipe Weld & Root Fillet Weld



Carbon Fiber Crack Detection



Composite Material Crack Detection

Part 4: Technical Specifications

Parameter	MINI-5	MINI-10	MINI-20	MINI-30	MINI-50 (Custom)
Detection Range (mm)	0-5000	0-10000	0-15000	0-25000	0-30000
Sound Velocity (m/s)	1000-15000	1000-15000	1000-20000	1000-25000	0-30000
Sensitivity Reserve	≥60dB	≥62dB	≥65dB	≥66dB	≥66dB
Dynamic Range	≥42dB	≥46dB	≥48dB	≥50dB	≥52dB
Horizontal Linearity Error	≤0.2%	≤0.1%	≤0.1%	≤0.1%	≤0.1%
Vertical Linearity Error	≤3%	≤3%	≤2.5%	≤2%	≤1.5%
Far Zone Resolution	≥26dB	≥28dB	≥30dB	≥32dB	≥33dB
Memory	8GB	8GB	8GB	8GB (Expandable to 64GB)	8GB (Expandable to 128GB)
Frequency Bands (MHz)	0-5, 5-10	0-5, 5-15	0-5, 5-15, 15-25	0-5, 5-15, 15-25	0-5, 5-15, 15-25
Clutter Suppression	None	Yes	Up to 60%	Up to 60%	Up to 60%
Noise Reduction	None	None	4-level	4-level	4-level
Secondary Wave Color	None	Yes	Yes	Yes	Yes
Pulse Type	400V Spike	400V Spike	400V Spike	Spike/Square	Spike/Square
AWS Compliance	None	Yes	Yes	Yes	Yes
Wave Comparison	None	None	Yes	Yes	Yes
Language Support	Chinese	Chinese	Chinese	Chinese/English/French	Customizable

Probe Delay	0.0～199.9μs
Gain Control	0～110dB (Adjustable in 0.0/0.1/0.5/1.0/2.0/6.0dB steps)
Damping	High/Low
Operation Mode	Single/Dual Probe
Detection Mode	Full/Positive/Negative Half-wave, RF
PRF	40/250/1000Hz (Selectable)
Pulse Shift	-10.0～2000mm
Sampling Rate	400MHz (Hardware-based)
Measurement Mode	Leading Edge/Peak
Auto Gain	20%～85% (5% steps)
Interfaces	2× USB-A/B
Display	5.0" TFT LCD (800×480 pixels)
Power Supply	AC 100-240V, ≥6 hours battery life
Operating Temperature	-10～+50℃
Weight	~1.0kg (Including battery)

Part 5: Standard & Custom Probes



Ultrasonic Straight Probe

Customizable bottom shapes
Interfaces: C6, C9 (LEMO-1), Q9 (BNC) – customizable
Applications: Welds, shaft, forged/cast components, Railway wheel and rail, pipe and pressure vessel, storage tank, turbine blade, and bonding/adhesive inspection



Ultrasonic Angle Beam Probe

Good acoustic impedance matching with most metallic materials
Interfaces: C6, C9(LEMO-1), Q9(BNC) – customizable
Application: General flaw detection, Ultrasonic testing of metal components with uncomplicated structures, Inspection of plates, bars, forgings, castings, billets, tubes and rods, various metal and non-metal small tanks, layered structures and laminated structures, coarse-grained or high attenuation materials, material sound velocity and characteristic testing



Dual Crystal Straight Probe

Enhanced coupling for rough/curved surfaces
Low noise, high near-surface resolution
Interfaces: Q6, C5 (LEMO-00), L5 (Microdot) – customizable
Applications: Thin plates, pipes, containers, near-surface defects



Immersion Probe

Front 1/4-wavelength matching layer ensures maximum energy output
Unaffected by transducer-liquid coupling conditions
Applications: General use, inspection of thick materials, improved sensitivity for small defects, inspection of tubular/rod-shaped materials, online thickness measurement, automated scanning



Creeping Wave Probe

Effective detection depth: 0.5mm – 9mm
Compensates for the blind zone (0.5 – 4mm) of dual-crystal straight probes
Applications: Surface defects in porcelain insulators, defects in dissimilar metal welds, small-diameter pipe welds, defects in high-strength alloy bolts, subsurface cracks in castings/cladding layers



Spot Weld Probe

Reduces coupling effects on uneven weld points
Different crystal sizes for measuring spot weld quality of varying dimensions
Default connector: Side-mounted Microdot
Applications: Automotive spot weld integrity testing, industrial spot weld NDT, electrical industry spot weld inspection



High-Frequency Probe

Equipped with a solid delay line
Frequency range: 20 – 50 MHz, wideband narrow-pulse performance
Extremely small focal spot diameter in near-field or focal zone
Applications: Micro-cracks on surfaces, high-resolution defect detection, micro-cracks/porosity inspection



High-Temperature Probe

Provides 0° longitudinal wave delay block
Probe base can be customized into different shapes
Applications: High-temperature environment inspections, intermittent contact detection on hot workpieces, direct flaw detection in castings/forgings, curved surface inspection



Shear Wave Straight Probe

Generates shear waves vertically inside the workpiece
Suitable for confined or hard-to-access inspection spaces
Applications: Shear wave transmission measurement, Young's modulus/shear modulus calculations, grain structure analysis in workpieces

Part 6: Cables & Test Blocks

Ultrasonic Probe Cable

The ultrasonic testing probe cable is a critical consumable that prevents external electromagnetic interference from affecting the pulse transmission and echo reception of the probe. It also blocks high-frequency pulses within the cable from radiating outward as electromagnetic waves. This cable connects the ultrasonic flaw detector to the ultrasonic probe, typically with a standard length of 2 meters, though custom lengths are available.

The probe cable consists of a coaxial cable (conductor + insulation layer + shielding mesh) and two connectors (one for the transducer and one for the instrument), serving as the medium for electrical signal transmission. Common connector types include BNC (Q9), Microdot (L5), Lemo-00 (C5), and Lemo-1 (C9). Common coaxial cable specifications include RG174, RG178, RG316, and RG58. Unless otherwise specified, all cables have an impedance of 50 ohms.



Ultrasonic Testing Blocks



CSK-IA Testing Block

A standard test block specified in the JB1152-81 standard for ultrasonic weld inspection of boilers and steel pressure vessels, modified from the IIW block.

Primary Use: Calibrating instrument performance, testing probe characteristics, and adjusting inspection parameters. Ensures the accuracy and reliability of the detection system for dependable results.



CSK-IIIA Testing Block

A test block with artificial defects, commonly used to evaluate inspection effectiveness or equipment performance.

Primary Use: Thin-plate weld inspection.

Its short side-drilled holes produce a steep distance-amplitude curve (DAC), enhancing sensitivity to small defects in thin plates.



RB Series Testing Blocks

Feature diverse structures, including flat-bottom holes and side-drilled holes of varying shapes and sizes, simulating real-world defects for comprehensive evaluation.

Primary Use: Steel structure weld inspection.

Used for DAC calibration, adjusting scanning range/speed, and determining the K-value of angle probes.



CSK-IIA Testing Block

A standard test block designed for ultrasonic inspection of pressure equipment with Type I welded joints.

Primary Use: Medium-to-thick plate inspection.

Provides a more accurate DAC, aiding in defect sizing and positioning.

Part 7: Packing List *

No.	Item Name	Specification	Qty	Unit
1	Main Unit	M-ULTRAL series	1	unit
2	Power Cord		1	pc
3	AC Adapter		1	pc
4	Probe Connection Cable	Q9-Q9 Single Line	1	pc
5	Straight Probe	N1-2.5P20	1	pc
6	Angle Probe	A2.5P 9*9 K2	1	pc
7	Digital Cable		1	pc
8	USB Flash Drive	8G	1	pc
9	Operating Manual		1	pc
10	Warranty Card		1	pc
11	Product Guarantee Card		1	pc
12	Packing List		1	pc
13	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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