

Stock code:301528



DOPPLER ELECTRONIC TECHNOLOGY

Serve society and benefit human security
Build a world-class NDT brand

Guangzhou Doppler Electronic Technologies INC



Http: //www.cndoppler.com



E-mail: cndoppler@cndoppler.com



TEL: 020-82260495 82086632



FAX: 020-82086200



ADD: Doppler Building, No.1501 Kaichuang Avenue, Huangpu District, Guangzhou



COMPANY PROFILE



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01[✓]

ENTERPRISE INTRODUCTION

Build a world-class NDT brand



Company Profile

Development process

Corporate culture



COMPANY PROFILE

Doppler took the lead in realizing the **localization** of ultrasonic phased array instruments and probes, breaking the foreign monopoly

3D-TFM imaging technology and related manufacturing technology have reached the international leading level

Successfully overcome the industry problem of **256**-channel parallel transmission/reception

Application

- Special equipment
- Nuclear energy
- Aerospace
- Heavy machinery
- Energy and electricity
- Petroleum petrochemical
- Research institutions
- Transportation
- New energy vehicles
- Testing institutions

Established in 2008, **Guang zhou Doppler** Electronic Technologies INC (stock code: 301528) stands as a professional provider of industrial nondestructive testing equipment and solutions, aspiring to establish a world-class brand in the nondestructive testing industry. Our comprehensive product portfolio encompasses industrial ultrasonic phased array testing equipment, automated testing systems, ultrasonic transducers, bespoke testing and analysis software, and other ancillary testing equipment, collectively offering customers a comprehensive ultrasonic nondestructive testing solution. Recognized nationally as a "specialized and innovative" little giant enterprise, a national high-tech enterprise, and an innovative benchmarking enterprise in Guangzhou (technical benchmarking), we have established several provincial and municipal R&D platforms. In late August 2023, we successfully debuted on the Growth Enterprise Market of the Shenzhen Stock Exchange, earning accolades as "the premier domestic ultrasonic nondestructive testing enterprise."

Doppler has taken the initiative in achieving the localization of ultrasonic phased array instruments and probes, effectively breaking the foreign monopoly. The pioneering high-performance ultrasonic phased array detector developed in China has garnered recognition as an innovative national product. The project titled "Key Technologies and Industrialization of 3D Real-time High-resolution TFM Intelligent Ultrasonic Phased Array" has undergone evaluation by the China Machinery Industry Federation, confirming that its overall technology has attained international advanced standards. Notably, the portable 3D-TFM imaging technology and its associated manufacturing techniques have also reached the pinnacle of international advancement. Doppler has established a groundbreaking research, development, design, and manufacturing system for high-end ultrasonic probes, boasting international leadership in designing and manufacturing 1-3 composite materials. Furthermore, the company possesses the capability to develop and produce high-frequency (25MHz) large-scale and high-density ultrasonic phased array probes.

As an industry leader, Doppler has been actively involved in the formulation of standards, taking both a leading and participating role in the drafting of numerous national and industry standards that have already been implemented. Doppler has presided over and participated in several major scientific research projects at the national, provincial, and municipal levels. Notably, as the lead unit, Doppler spearheaded the "Development and Application of New Ultrasonic Phased Array Instruments," a national major scientific instrument and equipment development project funded with a total of 45.57 million yuan. This project successfully tackled the industry challenge of 256-channel parallel transmission/reception, thereby establishing Doppler's pioneering position in the realm of ultrasonic phased array technology.

Looking ahead, Doppler will continue to deepen scientific and technological innovation, consolidate and expand its leading edge in core technologies. While deeply cultivating existing fields, we will strategically enter the field of radiographic detection and build a new pattern of coordinated development of ultrasound and radiographic technology. The company will use mature and stable products as a solid foundation and innovative and customized solutions as a powerful engine to achieve dual-wheel drive "mature business" and "emerging field", and write an even more glorious chapter for the non-destructive testing industry!



DEVELOPMENT HISTORY

2008-2011

The start-up of the company

- ✓ Took the lead in breaking through 1–3 composite technology and realizing mass production of composite probes;
- ✓ Products have been highly praised by the top international institute of nondestructive testing, Fraunhofer Institute of Germany.
- ✓ Anyscan series portable detectors are available, which lays a solid technical foundation for the research and development of phased array instruments;
- ✓ The marketing network at home and abroad is gradually improved, and the products are exported to Southeast Asia, America, Europe and other regions;
- ✓ Relying on the advantages of high-end technology, brand awareness has gradually improved.

2012-2015

Endlessly innovate and gather strength to move forward

- ✓ Successfully developed the first portable phased array detector Phascan in China, which was recognized by Guangdong Science and Technology Department as reaching the international leading level and won the national key new product certificate;
- ✓ The high-end ultrasonic "The high-end ultrasonic phased array project "was approved by the Ministry of Science and Technology as "National Major Scientific Instruments Special Project" (45.57 million yuan);
- ✓ Successfully developed single crystal composite probe;
- ✓ The product marketing network has achieved a comprehensive vertical and horizontal deployment, encompassing both regionalization and industrialization.

2016-2019

Transformation of Product Lines and Relocation to a New Facility

- ✓ 256-channel high-end phased array equipment was converted into production, and automatic platform products were successfully built;
- ✓ Products are transformed from portable to automation and system integration;
- ✓ Set up an American online marketing website to further penetrate the European and American markets;
- ✓ Moving to a new location, the company has entered a new journey of development.

2020-2023

Attain a milestone breakthrough by reaching the peak

- ✓ The successful listing of the company on the Growth Enterprise Market marks a significant milestone in the company's developmental history.
- ✓ Introduce external funds and optimize resource allocation;
- ✓ Gradually expand into emerging industry sectors such as consumer electronics, semiconductors, and renewable energy.
- ✓ The company's industry standing and market influence have been significantly strengthened.

2024-the next five years

Work together to set sail

- ✓ Continue to improve the company's strength and build a collaborative development path between ultrasound and radiation;
- ✓ Broaden the product line and strive for greater market share;
- ✓ Leveraging premium resources and developing large-scale integrated systems into mature products;
- ✓ Strive to become an internationally competitive and influential nondestructive testing brand.

CORPORATE CULTURE

Enterprise introduction

Company Profile

Corporate Philosophy

- Pursuit of excellence - constantly improve ourselves and do our best.
- Unity and cooperation - pooling resources to create great undertakings.
- Respect others - fully consider the interests of everyone, including partners, customers, suppliers, employees, etc.
- Sincerity and trustworthiness - honesty and keeping promises.

Enterprise introduction

Company Profile

Enterprise mission

Serve society and benefit human security.

corporate vision

Build a world-class NDT brand.

Core values

Love Integrity Creation Dedication.



02[✓]

Qualification honor

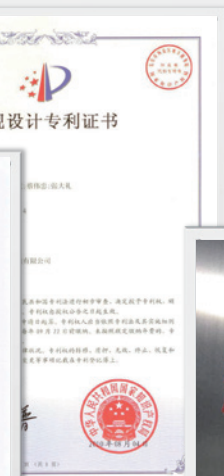
Build a world-class NDT brand



Company qualification

QUALIFICATION HONOR

- ✓ "little giant" enterprise.
- ✓ National high-tech enterprise.
- ✓ Guangzhou's 100 innovative benchmarking enterprises.
- ✓ Two projects were approved by the Ministry of Science and Technology as "National Major Scientific Instruments Special Projects"
- ✓ Member unit of China Instrumentation Society.
- ✓ Executive director unit of NDT branch of Guangdong Mechanical Engineering Society.
- ✓ The 7th Executive Director Unit of Guangzhou Instrumentation Society.
- ✓ Member unit of Shanxi Special Equipment Association .
- ✓ Executive director unit of Guangdong Biophysics Society.
- ✓ Member of American Society for Nondestructive Testing.
- ✓ Nondestructive Testing Society Executive Director of Henan Nondestructive Testing Society.





03[√]

Industry status

Build a world-class NDT brand



Industrial Status

Core Competitiveness

INDUSTRIAL STATUS

Doppler is the first listed company in China that mainly engages in industrial ultrasonic testing. It has built the Guangdong Provincial Phased Array Engineering Technology Research Center and is the first company in China to establish an advanced ultrasonic probe production line. The company was the first to achieve mass production of 1-3 composite probes, successfully breaking the monopoly position of foreign companies; at the same time, it is also one of the earliest manufacturers in China to successfully develop phased array equipment, and plays a benchmark and leading role in the industry.

The company has strong R&D and customization capabilities, and can provide excellent non-destructive testing solutions for many high-end fields such as aerospace, nuclear power, energy, and rail transit. The standard 《JB/T 11731 Phased Array Probe》 compiled by Duola Music has been cited by the national standard, national standard and many industry standards, unifying the technical specifications of domestic phased array ultrasonic probes for the first time. In addition, the company also participated in the writing of the mandatory standard 《NB/T 47013.15》 for boiler pressure vessels. It is also the only instrument and equipment manufacturer in China to participate in the editing.

In the field of X-ray detection, Doppler has also made a breakthrough. The company has mastered the core technologies such as cold cathode ray technology, digital ray detection (DR) and computed tomography (CT), established a perfect platform for ray detection system, and formed a complete technical chain from ray source control, imaging algorithm to intelligent defect identification. The self-developed high-resolution digital imaging system and intelligent analysis software can efficiently and accurately complete the internal inspection and quality evaluation of complex structural parts, which are widely used in aerospace, nuclear industry, new energy batteries, electronic manufacturing and other fields. Doppler's continuous innovation in radiographic testing technology makes the company in a leading position in the industry in the direction of multi-technology integration of nondestructive testing.

As a listed company, Doppler has actively expanded the application boundaries of new non-destructive testing technologies such as ultrasound and radiation, and has achieved remarkable results in industries such as 3C electronics, new energy, and high-end equipment manufacturing, fully demonstrating the company's innovation capabilities and sense of social responsibility. In the future, the company will continue to work to promote the popularization and development of non-destructive testing technology and contribute more to the progress and innovation of the industry.

CORE COMPETITIVENESS

With strong technical strength and foresight, Doppler has obvious advantages in composite material products and high-performance composite material probes. The performance and quality of the probes can be comparable to internationally renowned brands. In the customized field of high-end and special probes, it is also in a leading position. Since the development of the first phased array equipment at the end of 2012, Doppler has been deeply engaged in the field of phased array technology. At present, it has made many breakthroughs in the research of phased array technology, and the Total Focusing Method, phased array 3D real-time imaging, intelligent defect identification, and 3D-TFM real-time technology have been realized productively. The comprehensive research and development capability is outstanding.

Doppler is the only company in China that produces industrial ultrasonic testing products in the whole industrial chain. In recent years, it has also made rapid progress in the development of supporting scanning devices and automation systems. Its automation products have covered various industries such as automobiles, nuclear power, military industry, and petroleum.

Today, we will use “dual drive of ultrasound and radiation technology” as the core engine to create a one-stop solution covering 80% of industrial needs, aiming to deeply serve customers and build a solid customer ecosystem.





04[✓]

Product center

Build a world-class NDT brand

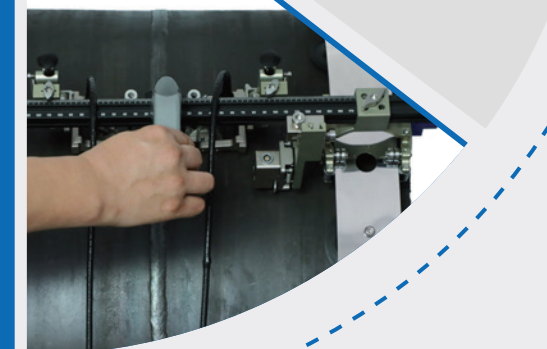
Ultrasonic Instrument

Ultrasonic Probes

Scanners

Automatic
systems

X-Ray Products



ULTRASONIC INSTRUMENT

1.1 Portable phased array ultrasonic flaw detector

Doppler has been focusing on the development of phased array equipment for more than ten years, and now it has formed three series of products, Novascan, Phascan and Flexscan, which can meet the high-end application requirements and most common application scenarios, and are widely used in aerospace, oil and gas, transportation, special equipment and other industries. The inspection objects include flat weld, pipeline weld, TKY and nozzle weld, all kinds of parent metal inspection, corrosion inspection, austenitic stainless steel inspection, composite material inspection, PE material inspection and so on.



Functional comparison				
Function	NOVASCAN V2	PHASCAN-II	PHASCAN	FLEXSCAN
3D-TFM	✓			
Phased array 3D real-time detection	✓			✓
FMC/PWI/PCI-TFM	✓			✓
2D scanning	✓	✓		✓
DLA/DMA TFM	✓			
Online monitoring	✓	✓		✓
TKY weld diagram	✓	✓	✓	✓
Module for nozzle weld detection	✓	✓		✓
TOFD detection	Group 2	Group 2	Group 2	Group 1
Group number	unlimited	8	8	unlimited
Single file size	unlimited	1G	256M	
3D beam simulation	✓	✓		✓
CAD module import	✓	✓	✓	✓
Dual Matrix Probe	✓	✓		✓
Butt weld detection	✓	✓	✓	✓
Corrosion detection	✓	✓	✓	✓

* The function comparison list of the four devices is as above. Please select the appropriate device according to your needs.

1.2 ROBUST SERIES BOARD

With years of deep experience in the development and application of ultrasonic equipment, Doppler has now built a full set of ROBUST series board products. From single-channel board to multi-channel board, from simple entry-level phased array board to large-channel phased array board, Doppler boards are widely used in aerospace, nuclear power, petroleum and petrochemical, automotive electronics and other industries, providing strong equipment support for automation development and helping technological upgrading and innovation in various industries.

■ ROBUST P series phased array ultrasonic board

ROBUST P series phased array boards have stable performance and perfect functions, and are ideal platforms for automatic detection. At present, it has been successfully applied in manufacturing, military industry, scientific research and other fields. 64/128PR, 64/64 PR, 32/128 PR, 32/64 PR, 16/128PR available. In addition, TOFD module can be selected to support simultaneous detection and display of two independent TOFD channels and phased array. Equipped with gigabit network port, data transmission rate 90MB/s, high-speed automatic data transmission can be realized without pressure.

The board provides a complete secondary development package; a matching powerful software system can be used for multi-mode detection. The software can be equipped with TFM module, 3D real-time detection module, etc., supporting customized requirements.



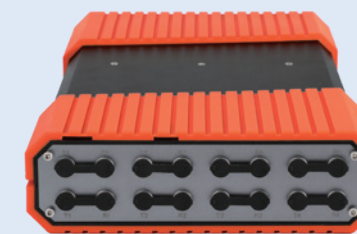
ROBUST F series large-channel phased array ultrasonic board ■



Robust F series high-end phased array ultrasonic board developed by Doppler is a high-performance and high-resolution board, which can be provided with 128/128PR and 256/256PR versions. Based on the particularity of its large number of channels, the equipment can give full play to the advantages of matrix array, DMA and other probes, greatly broaden the application fields of phased array technology, and be widely used in nuclear power, aerospace, high-speed railway, electric power, special equipment for ships and other fields to meet the needs of high-precision and high-resolution nondestructive testing. For special application scenarios such as austenitic stainless steel welds, dissimilar metal welds and parts with large wall thickness and high attenuation, it has good detection advantages.

■ ROBUST M series multi-channel ultrasonic board

ROBUST M independent multi-channel ultrasonic testing board adopts modular unit design, which can integrate multiple modules according to user's requirements to form a larger multi-channel system, such as $4 * n$ ($n \leq 8$) channel ultrasonic testing system. The combination of board is flexible and efficient, and modules support multiple trigger modes and cascade synchronization between devices. The data sampling of each channel is parallel sampling, and the PRF of each channel is as high as 10 KHz, which can automatically detect no pressure at high speed.



■ ROBUST S single-channel ultrasonic board

The single-channel ultrasound board is small and portable, with a fast data acquisition speed and high cost performance. Advanced integrated circuit technology is adopted, which is suitable for highly integrated demand scenarios, such as automatic production lines in metallurgy, steel, railway, machinery and other industries, and also suitable for scientific research institutes to carry out new scientific research projects.



■ Characteristics and added value of Doppler board

Doppler board products provide complete SDK development kit, which can be redeveloped according to the application characteristics of different industries; For complex application scenarios, customized solutions can also be created according to users needs, and the full chain service from design to installation and debugging can be realized. At the same time, the board also provides supporting general software, which is convenient for users to conduct basic research and experiments. The board has reliable performance and easy maintenance. Various communication interfaces adopt universal design, which can better match various automatic production lines and provide guarantee for the quality control of industrial automation products.

ULTRASONIC PROBE PRODUCTS

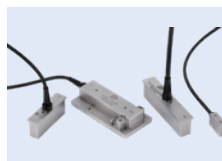
Doppler has been working on probe technology for more than ten years. As early as 2009, a world-class probe production line was established, which realized the production of the first batch of 1-3 composite probes in China and broke the monopoly position of foreign enterprises. The company has strong technical strength, strong foresight and obvious advantages in composite chips and high-performance composite probes. The performance and quality of probes can be compared with the internationally renowned brands, and it is far ahead in the field of high-end and special probes customization.

2.1 Phased array probe

The frequency range of the conventional phased array ultrasonic probe is 0.5 MHz-25 MHz, number of elements is 8-1024, pitch 0.2 mm-2.0 mm. Equipped with wired array, matrix, self-focusing, annular, concave and integrated wedge. For special customization requirements, please contact local sales department. Wedges, connector conversion boxes and cables can also be customized according to customer requirements.



Linear array probes: conventional array probe. It can be used for weld detection, corrosion detection and general purpose detection.



Immersion probes: waterproof within 1 meter underwater, and can be assembled on the water wedge to realize good coupling of various surfaces. Suitable for the detection of plates, pipes and composite materials and on-line detection of systems.



Matrix array probes: Three-dimensional imaging can be realized, and the sound beam can be deflected in all directions at a large angle; spatial focusing is smaller, energy is more concentrated, and the signal-to-noise ratio is better.



Dual Matrix/Dual linear array probes: transmitting and receiving are separated, which improves the surface resolution. It can generate small-angle longitudinal waves, which is suitable for welding detection of stainless steel and dissimilar materials.



Wheel probes: suitable for the detection of composite materials and other materials with smooth surfaces. For tire materials with extremely low attenuation, acoustic energy is more concentrated in the material.



Concave/Circular array series: waterproof performance within 1 meter underwater, acoustic impedance is well matched with water. Can cooperate with all kinds of automatic detection systems for online detection.



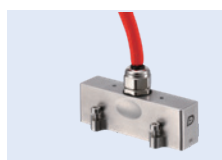
Wedge Integrated: wafer and wedge are permanently fixed, or delay block is built-in, so the overall size of the probe is smaller. Can be used in a narrow space. Direct contact scanning with angle can be performed. It is suitable for welding detection of castings, forgings, pipelines and components.



Flexible probe: The long axis direction of the wafer can bend with the surface shape of the workpiece, minimum bending radius 30 mm. With a minimum thickness of 3mm, it can be detected in a narrow space.



Focused linear array : The wafer is bent along the length, optimizing focus on the secondary axis and enhancing the detection of fine defects in thin-walled pipes. It is primarily used for inspecting small diameter pipe welds, boiler pipe fittings, and applications requiring high inspection accuracy.



High temperature probes : The probe is fully temperature-resistant and, when paired with a high-temperature wedge, can continuously inspect workpieces with surface temperatures up to 150°C without cooling. Compatible with both 0° and angled high-temperature wedges.

2.2 Conventional industrial probe

Doppler offers three types of transducers: PL series, PH series, and C series, each with different performance characteristics. The PL series is suitable for most detection applications, offering balanced sensitivity and resolution. The PH series (narrow pulse) provides excellent vertical and horizontal resolution, a very small initial blind zone, but typically has lower sensitivity than the PL and C series. The C series uses composite ceramic wafers and is ideal for applications requiring high penetration and signal-to-noise ratio, such as detecting coarse-grained or fiber-reinforced composites. It also performs well with media like water and plastics.



Normal Beam probes: single-chip transducers, and the sound wave is vertically incident and directly contacts with the detected workpiece. Can provide national, European and American standard products.



TOFD probes: usually used in pairs. Based on diffraction time difference technology, it has a good detection rate for defects with irregular orientation.



Protective Face Probes: The probe features a replaceable soft film or wear-resistant sleeve at the front, with sound waves incident vertically. This design enables rapid detection on uneven or rough surfaces and is especially effective for low acoustic impedance materials.



Immersion probes: designed for complete or partial immersion in water or other liquids, featuring a stainless steel housing that is pressure and corrosion resistant. It offers three configurations: unfocused, point-focused, and line-focused. It's ideal for online thickness measurement, automatic scanning, material analysis, and imaging.



Angle Beam probes: A single-chip transducer generates shear waves in the workpiece for measurement. It is commonly used for detecting welds, pressure vessels, castings, forgings, wheel shafts, rails, and more.



High-frequency probes: A single-crystal transducer with a frequency above 20 MHz, available in direct contact and liquid immersion versions. It offers excellent near-surface, vertical, and horizontal resolution, with a very small focal spot diameter in the near field or focus, making it ideal for high-precision detection.



Dual Element probes: The transmit-receive separation includes normal beam and angle beam probes, eliminating the impact of the initial wave blind zone. Normal beam probes are typically used for high-precision thickness measurement or near-surface defect detection, while angle beam probes are ideal for weld inspection in stainless steel and other highly attenuating materials.



High Temperature probes: Used in high temperature environment, the delay block can be replaced. There are 0° (ZH) and 45° /60° /70° (AH) delay blocks, and the maximum temperature resistance is 500°C and 270°C respectively (intermittent contact detection).



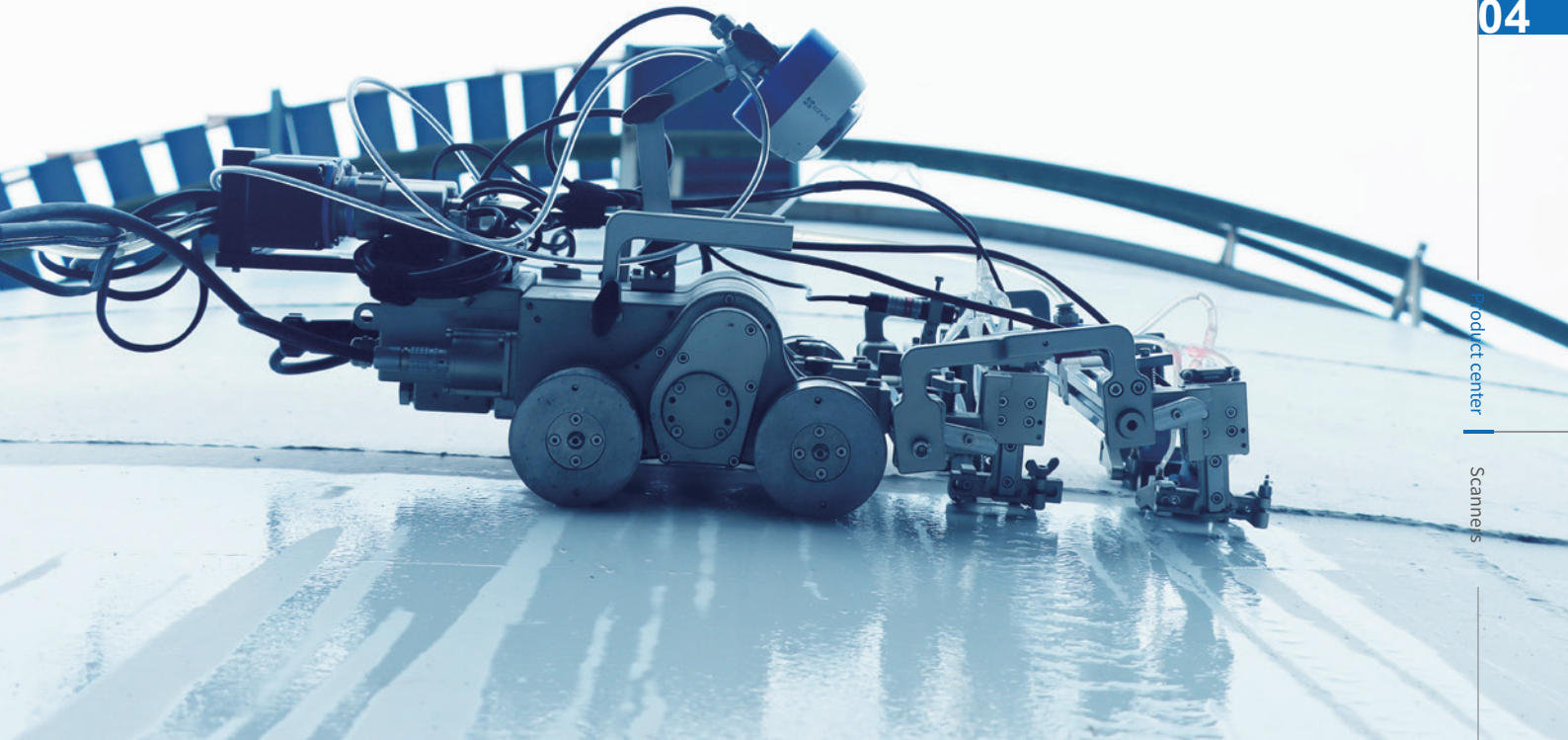
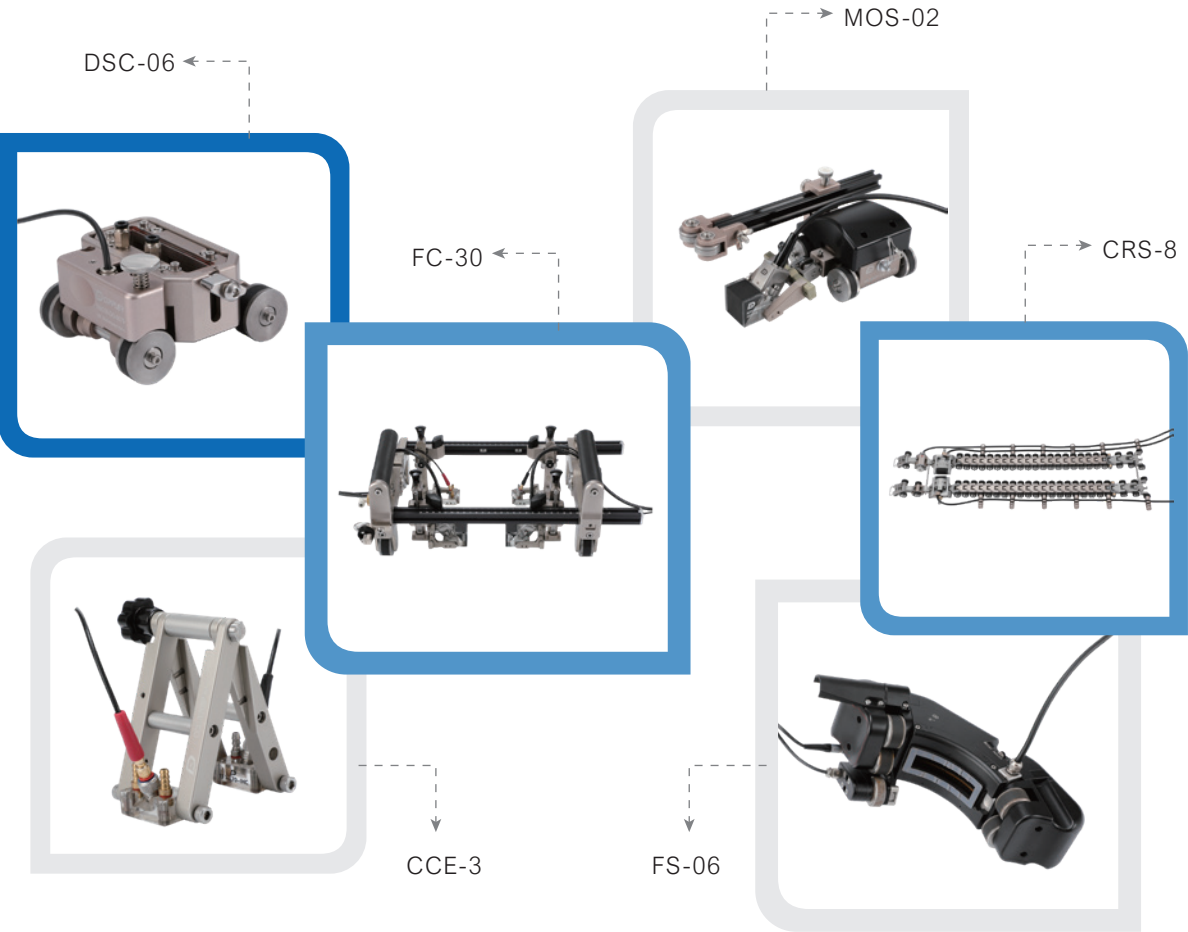
Delay Line probes: The front delay block is replaceable, with vertically incident sound waves, ensuring excellent near-surface resolution. It is suitable for precise thickness measurement or detecting ultra-thin workpieces.



Thickness measurement probes: provide complete double-crystal and single-crystal thickness measuring probes, which are suitable for measuring the thickness of corroded wall, various pipe walls and coatings. The probe frequency and contact size can be freely selected.

3.1 Scanners

The scanner is a crucial component of ultrasonic testing, serving as the foundation for transitioning from manual to semi-automatic or automatic testing. It can hold multiple probes, making it ideal for complex detection scenarios and significantly improving efficiency. Additionally, the scanner is typically equipped with a position encoder, enabling complete data recording for easier archiving and subsequent analysis.



functional comparison			
Name	Model	Applicable scope	Remarks
Small diameter tube scanner - double chain	CRS-15	OD20mm-OD114.5mm	Circumferential weld
Medium diameter pipe weld seam scanner	CRS-25	OD50mm-OD300mm	It can be used for welding detection of straight pipes and bent pipes. (Two probes can be clamped for bilateral detection)
Large-diameter weld scanner	MOS-04	OD200mm-OD1219mm	Circumferential weld, which can clamp 4 probes for bilateral detection.
Spiral weld scanner	MOS-40	OD200mm or more	Compatible with longitudinal weld and girth weld, bilateral inspection.
Small tube corrosion scanning device	FS-04	OD40mm-OD150mm	Flexible probe+water jacket, change water jacket with different pipe diameters.
Small tube corrosion scanning device	FS-05	OD40mm-OD150mm	Concave array probe+water jacket
Elbow scanner	FS-06	OD above 102mm	Flexible probe+water jacket, change water jacket with different pipe diameters.
Multi-purpose scanner	MOS-03		Two-side detection of planar butt weld with dual-phase array probe, with laser collimator, supporting TOFD detection.
Tube seat weld scanner	MOS-07	Φ100mm≤ or less, and the outer diameter of the branch pipe is Φ 300mm or less.The outer diameter of the mother tube is ≥ Φ 600 mm.	It is suitable for welding detection of 90-degree direct insertion of branch pipe and mother pipe.
Butt weld scanner	FC-30		It is suitable for detecting circumferential butt weld and flat butt weld of pipes with OD above OD110mm, and can clamp 2 PA probes and 2 TOFD probes.
Two-dimensional electric scanner	FC-XY-DD		Effective scanning area is 800mmx300mm.
Multifunctional scanning vehicle	DSC-08		Corrosion detection and parent metal detection of pipes and flat plates over 6 inches; Phased array for pipes and flat plates above 6 inches+TOFD weld detection
Fully automatic crawler	DSC-03	The application scope of circumferential motion is Φ 800 mm-plane, and the application scope of axial motion is Φ 500 mm-plane	Suitable for high-altitude detection scenes such as spherical tanks and high towers, and can meet the requirements of weld detection or corrosion detection with different accessories.

* The table above shows the typical scanner products. For more information, please refer to www.cndoppler.com.

4.1 Water-cooled plate phased array water immersion automation system

The phased array water immersion automation system for water-cooled panels is designed for high-precision imaging of welding quality. It uses a customized process to detect flat-bottomed holes with a maximum diameter of 0.1 mm in extreme conditions, offering an ideal solution for high-end water immersion detection. The system features clear imaging, automatic defect evaluation, workpiece statistics, and strong process versatility. It is compatible with various water cooling plate specifications and can also be extended to water immersion detection of automotive, aerospace, and precision parts.



4.2 Scanning acoustic microscope system

Scanning acoustic microscope utilizes various imaging modes to penetrate deep into materials, revealing microstructures with micron-level resolution. It can detect defects such as cracks, inclusions, and pores within the material. This technology is widely used in fields such as semiconductor chips, consumer electronics, and other industries.



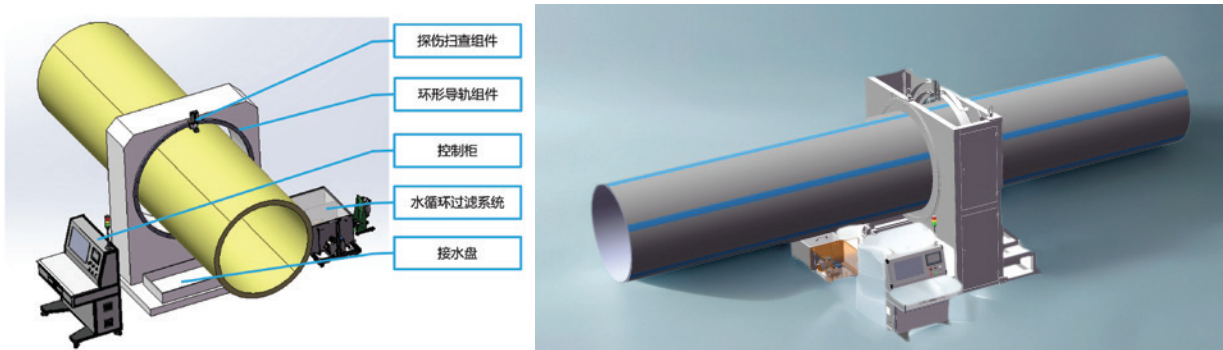
4.3 Friction stir welding phased array inspection system

The Doppler friction stir welding phased array automatic detection system is an ultrasonic phased array detection system based on advanced phased array technology. It integrates a multi-axis module, a detection tank, and automatic detection/analysis software. This system is primarily designed to identify and measure common defects in friction stir weld seams. Based on user-defined criteria, it automatically analyzes the detection data and provides real-time output of the results.



4.4 HDPE pipe automatic ultrasonic testing system

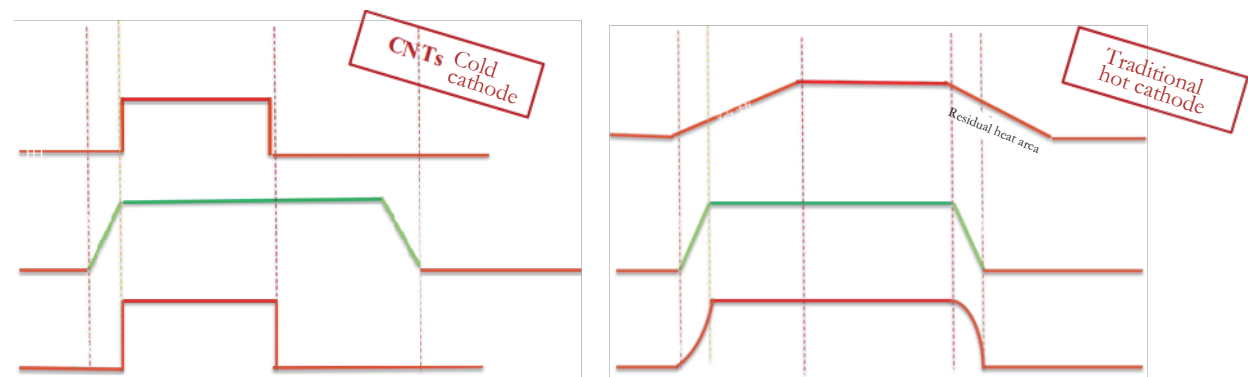
The system is a complete solution for measuring the wall thickness of HDPE pipes and detecting internal defects. It primarily consists of an ultrasonic flaw detection system, a scanning motion mechanism, an ultrasonic probe clamping mechanism, a control cabinet, a water circulation and filtration system, and a water receiving tray. With its fully automated design, the system requires no manual intervention. It ensures 100% coverage for thickness measurement and quality monitoring, effectively identifying internal defects such as inclusions, cracks, pores, delamination, and other issues in HDPE pipes extruded from production lines.



X-RAY PRODUCTS

Doppler has innovatively developed the world's leading carbon nanotube cold cathode technology and carried out the research and development and production of a series of high-end X-ray sources and related products. The main products include offline and online DR, CT and other products, which are widely used in industry, security inspection, medical care, scientific instruments and other fields. Committed to providing customers with precise and efficient, ultra-low radiation damage, green and innovative solutions.

5.1 Comparison between cold cathode and traditional hot cathode technology



Technical comparison

Cold cathode	Traditional hot cathode
Instantaneous imaging, no ineffective X-rays, greatly reduced harm to the human body (ultra-low dose)	Producing large amounts of useless doses, causing harm to patients
Nanosecond startup	Slow CT tube initiation
High-speed fast shooting, capturing moving objects	High speed can be achieved, with upper limit
No heating required, long service life	High operating temperature and short service life
Low power consumption, suitable for portable product development	High power consumption
The electron beam direction is concentrated, the energy divergence is small, and micro-focus spots can be easily achieved with high resolution	The energy divergence is large, the micro-focus spot is difficult to achieve, and the resolution is low
Programmable pulse output "ideal player"	Programming the pulse output is feasible but limited by its own physical properties

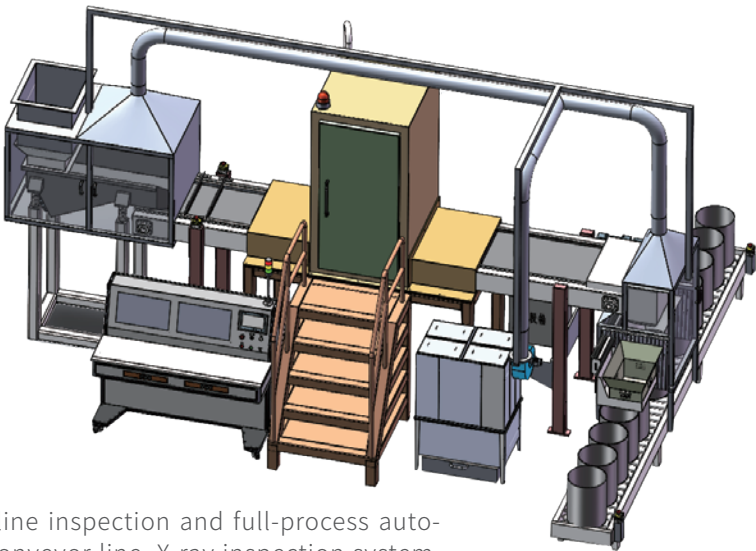
5.2 Industrial Microfocal CT Detection System

The industrial microfocus CT detection system is centered on technological breakthroughs represented by carbon nanotube cold cathode X-ray sources. Through the collaboration of high-precision mechanical systems, high-performance detectors and intelligent software, it achieves "microscopic" insight into the internal structure of industrial products. It is widely used in aerospace, semiconductors and electronics, new energy batteries, automobile manufacturing, materials science, precision manufacturing and other fields. It provides powerful tools for quality control, R&D and innovation in high-end manufacturing.



5.3 X-ray on-line detection system

The system uses high-energy X-rays to penetrate the workpiece, achieving real-time imaging and automatic identification of internal structures and potential impurity defects. X-rays are excited by a ray source, penetrate the workpiece to be measured, and reach a high-resolution detector. The difference in X-ray absorption by different material densities and atomic numbers is used to form a contrast image, and advanced image processing and intelligent recognition algorithms are combined to achieve accurate capture and classification of high-density inclusions.



The system supports high-speed assembly line inspection and full-process automation, including automatic loading area, conveyor line, X-ray inspection system, intelligent sorting and discharge area and central console. It is suitable for continuous production scenarios and realizes high-efficiency and non-destructive testing of batch parts.



05[✓]

Our customers

Build a world-class NDT brand



Our customers

OUR CUSTOMERS

Our customers

Our customers



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