

# 03

## SCANNER PRODUCT



- Corrosion and Base Material Inspection
- Weld Inspection
- Encoder
- PE Pipe Butt Joint Inspection

*The scanner product is an essential component of ultrasonic testing and serves as the foundation for manual to semi-automatic and automated inspection. The scanner is typically capable of holding multiple probes, making it suitable for complex inspection scenarios that require multiple probes, greatly improving testing efficiency. In addition, the scanner is generally equipped with a position encoder, which helps to achieve full data recording, providing convenience for data archiving and subsequent analysis.*

03

SCANNER  
PRODUCT

## Corrosion and Base Material Inspection

### Manual Chain Type for Piping

#### MOS08 Chain-Type Axial Stepping Scanner

The MOS08 quick-release chain-link pipeline weld scanner is an efficient, flexible, and professional inspection tool that provides a highly reliable and adaptable pipeline inspection solution for industrial applications. It is the ideal choice for those seeking high-efficiency and high-precision pipeline inspections.

#### Product Introduction

##### Flexible Quick-Release Design

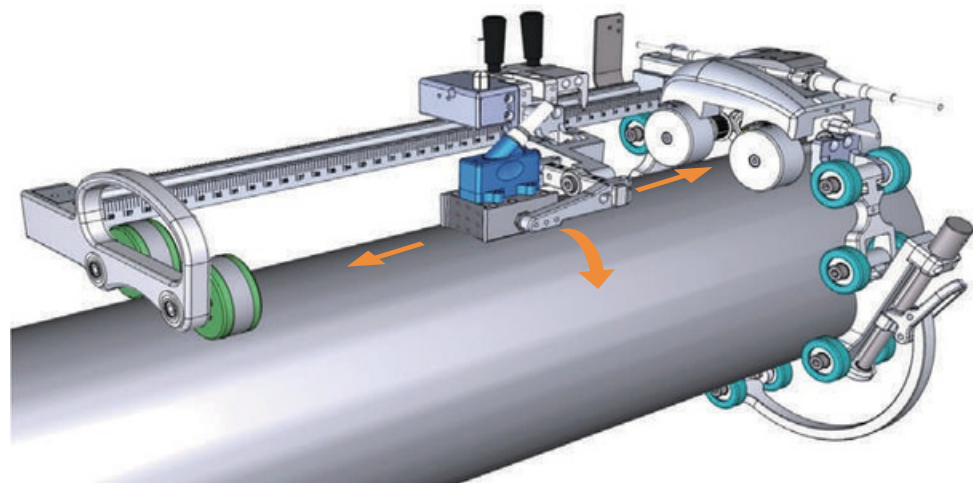
The MOS08 features an innovative quick-release chain-link design, making switching between different pipe diameters quick and easy. It can accommodate a minimum pipe diameter of 100mm, meeting the needs of small pipeline inspections.

##### Stepping Axis Function

The scanner's unique stepping axis allows for precise positioning during the inspection process. When performing pipeline corrosion detection, the stepping function ensures continuous and uniform scanning, guaranteeing the continuity and accuracy of the inspection process.

##### Customizable Stroke

The stepping axis provides a stroke range of 250mm and can be customized according to the specific requirements of the customer.



### Manual/Flat Probe Water-Filled Type

#### DSC06 Plate and Pipe Corrosion/Base Material Inspection Scanner



DSC06 is a scanner specially designed for corrosion detection of pipes and flat workpieces. It adopts local water immersion detection method and comes standard with a 4-element phased array probe. If you need other specifications of water layers or probes with different array elements, we can provide customized services. The scanning device is compact in design, easy to carry and operate, and greatly improves the convenience of field operation. The standard configuration is suitable for pipes and flat plates with a diameter of more than 40mm.

### Manual/Curved Probe Water-Filled Type

#### FS04 Axial Straight Pipe Flexible Probe Scanner



The FS04 scanning device is specifically designed for axial corrosion inspection of straight pipes. It consists of magnetic adsorption wheels, a support frame, a water jacket, an encoder, and a flexible probe. For pipes of different diameters, the device can be adapted to pipes with diameters greater than 40mm by replacing the water jacket.

#### FS06 Elbow Scanner



The FS06 scanner is an efficient product designed for inspecting corrosion in both bent and straight pipes. It consists of the following key components

- Flexible Probe**  
A single probe can be used for multiple pipe diameters.
- Guiding Support Wheels**  
These ensure the probe smoothly passes through the pipeline
- Water Jacket**  
Customizable according to different pipe diameters, ensuring correct probe positioning and protecting the pipe surface.
- Encoder**  
Provides precise location information. This scanner is particularly suited for elbow pipe inspection and can accommodate pipes with a minimum diameter of 40mm. Users can interact with the scanner via buttons to control line switching and start the inspection, ensuring an efficient operational process.

## Manual/Wheel-Type Probe Scanner

### LS03 64-Element Wheel-Type Scanner

This multifunctional wheel-type scanner is an advanced tool designed for high-standard inspection environments. It combines fast phased array technology with a modular design to meet the demands of complex and highly stringent inspection tasks. Its unique tire material and standard modular design make it an ideal choice for conducting high-quality inspections in challenging environments.

#### Product Introduction

##### Professional Application Range

This scanner is specially designed to provide solutions for detecting defects such as delamination and debonding in carbon fiber reinforced composite materials in the aerospace industry. It is also suitable for aircraft skin inspection.

##### Wide Applicability

It is suitable for large-area corrosion or base material inspection of various types of sheet materials, as well as corrosion or base material inspection of large-diameter pipes made of different materials.

##### Advanced Technology Alternative

The scanner offers an easily implementable alternative to traditional 2D encoding systems. Additionally, the wheel-type scanner provides an effective replacement for liquid immersion testing technology, making it particularly suitable for environments where traditional liquid immersion techniques cannot be used.

##### Modular Design

Featuring a standard modular design, users can swap probes of different frequencies based on specific inspection needs, enhancing the versatility and flexibility of the equipment.

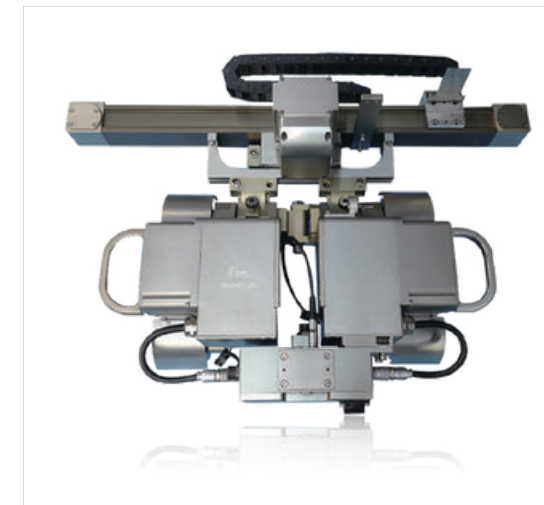


## Electric Scanner

### DSC03 Heavy Load Crawling Vehicle

The DSC03 is a multifunctional electric scanner designed to carry welding inspection brackets and corrosion cross-axis scanning brackets, meeting diverse inspection needs. The main features of this scanner include exceptional stability and a high load-bearing capacity.

\* next



##### Features and Specifications

*Adhesion Method: Permanent magnets, which maintain magnetic adhesion even after power loss.*

*Scanning Methods: Lateral, longitudinal, grid scanning, and sawtooth scanning.*

*Compatible Probes: Conventional ultrasonic probes, phased array probes, TOFD probes.*

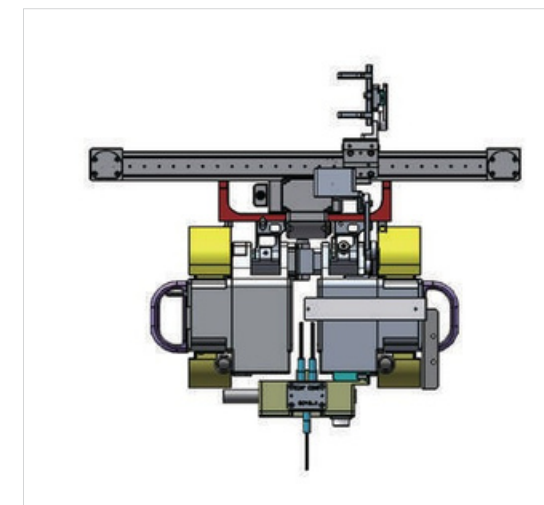
*Probe Capacity: Can carry 2-4 probes depending on customer requirements.*

##### Applicable Range

*For circumferential scanning on the inner wall of round pipes, the pipe inner diameter should be  $\geq 100$  mm.*

*For circumferential scanning on the outer wall of round pipes, the pipe outer diameter should be  $\geq 100$  mm.*

*For axial scanning on the outer wall of round pipes, the pipe outer diameter should be  $\geq 100$  mm.*



*DSC03+ Corrosion Detection Specifications effective stroke of scanning arm: 1000 mm*

*Motion Methods: Vertical, horizontal, inverted, etc.*

*Operation Mode: Automatic scanning, manual scanning*

*Crawler Speed Range: 1 mm/s ~ 100 mm/s*

*Electric Scanning Axis Speed Range: 1 mm/s ~ 100 mm/s*

*Working Voltage: AC 220V or DC 24V*

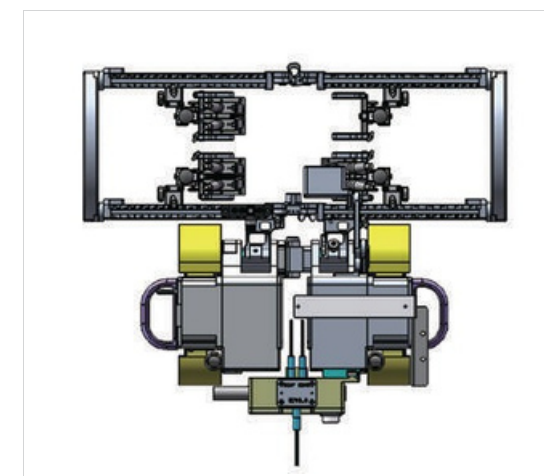
*Operating Temperature: -10°C ~ 40°C*

*Waterproof Rating: IP65, suitable for harsh industrial inspection environments*

*Video Function: Equipped with a Wi-Fi camera*

*Coupling Agent Delivery System: Electric water pump for water supply, with a lifting height of no more than 1.5 m*

The illustrated probe holding arm can hold a 128-element phased array probe.



##### DSC03+ Weld Inspection

*Equipped with the FC03 weld scanning device, it can effectively detect both longitudinal and circumferential welds. For inspecting circumferential welds on the outer wall, the minimum applicable pipe outer diameter is 100 mm; for inspecting circumferential welds on the inner wall, the minimum applicable pipe diameter is 100 mm; for inspecting longitudinal welds on the outer wall, the minimum applicable pipe outer diameter is 100 mm. When performing circumferential weld inspections, the device can be configured with up to four probes, while for longitudinal weld inspections, it can accommodate up to six probes. However, it is important to note that the maximum probe width should not exceed 10 mm to ensure efficient and accurate inspection.*

The illustrated holding frame can hold a 32-element or 64-element phased array probe.

03

SCANNER  
PRODUCT

## Weld Inspection

### Small and Simple / Single Probe

#### MOS01 Mouse-Type Scanner



This scanner is suitable for circumferential scanning of pipes with a diameter of  $\geq 100$  mm or larger.

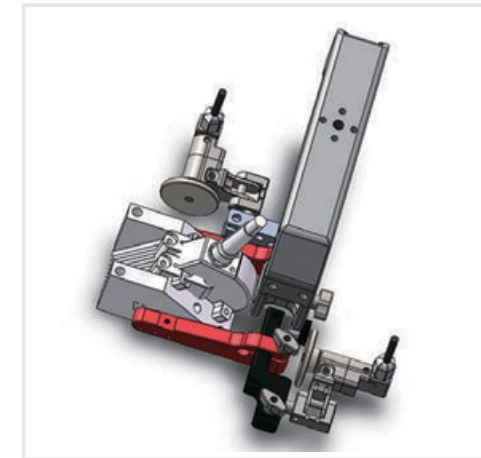
The MOS01 is a versatile scanner designed specifically for industrial inspections. It integrates portability and high performance, providing great convenience for users. Equipped with advanced encoder technology, the scanner ensures accurate data acquisition. Additionally, its holding frame allows for easy swapping of different types of probes to meet the needs of various inspection tasks.

#### Application Scenarios

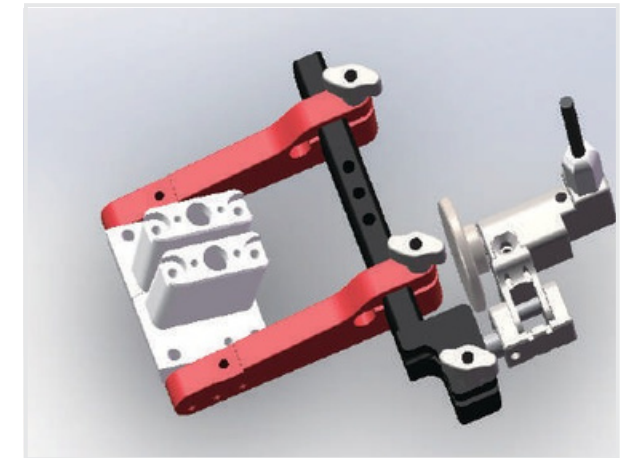
Petroleum and natural gas pipeline inspection  
Corrosion inspection of pressure vessels and pipelines  
Weld inspection of shipbuilding and offshore structures

#### MOS01

Optional accessories are available for inclined parallel scanning.



A32 Probe Fixation



Without Handle State

### Small and Simple / Dual Probe

#### MOS03 Dual-Sided Weld Scanner



- ✓ The MOS03 maintains the same core design as the previous MOS01, ensuring the continuation of the familiar portability and ease of operation for users.
- ✓ It can hold a pair of probes to perform a single set of TOFD or two sets of PA inspections, catering to different inspection needs.
- ✓ The newly added auxiliary wheels optimize the coupling effect between the probe and the workpiece, enhancing the stability and reliability of the inspection data.
- ✓ It supports probe combinations with a maximum width of up to  $\geq 100$  mm, offering users a wider range of probe options and greater operational flexibility.
- ✓ The scanner supports efficient circumferential scanning for pipes with a diameter greater than  $\geq 100$  mm, making the device suitable for inspections of pipelines and containers of various sizes.
- ✓ The integrated laser function provides a clear visual reference during circumferential scanning, ensuring high accuracy and efficiency throughout the inspection process.

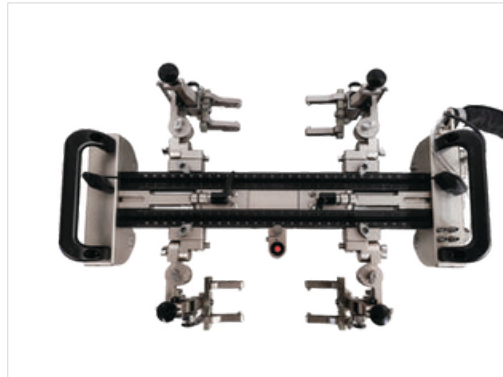
#### CCE-2 Simple Scanner

The CCE-2 consists of an encoder, holding frame, and handle. Compared to the previous generation, the encoder's cable direction has been changed to face upwards, which increases the encoder's lifespan. The holding frame has a maximum width of  $\geq 100$  mm and can hold wedges with a width range of  $100$  mm- $150$  mm.

Additionally, the CCE-2 features a handle designed for ergonomic comfort, improving user comfort during use. The handle also includes mounting holes to secure the cable to the handle, reducing the impact of the cable on probe coupling. The encoder has also been upgraded with an axial fixation method. In spaces with limited room, the handle can be detached for easier use.

## Manual Multi-Probe Scanner / Pipe and Plate Welds / Magnetic Multi-Probe Scanner

### FC14 Weld Inspection Scanner



The FC14 scanner is an efficient tool specially designed for inspecting pipe or plate butt welds. This device can hold up to four probes simultaneously, supporting the inspection of both axial and circumferential butt welds.

FC14 Inclined Parallel Scanning Bracket (Optional)  
FC14 inclined parallel scanning bracket codes: 2SP0446, 2SP0447

#### Component Composition

**Magnetic Wheels:** Ensure stable adhesion to the magnetic surface of the pipeline.

**Water Supply Port:** Provides coupling water to the probe.

**Holding Frame:** Fixes the probe in place, ensuring stability during the inspection process.

**Scale Rod:** Provides the operator with precise positional reference.

**Support Frame:** Ensures the correct positioning of the device on the pipeline.

#### Main Features

Quick positioning and stable adhesion achieved through four magnetic wheels.

Laser indicator auxiliary function to enhance the accuracy of inspection data.

Suitable for inspection of various pipe diameters; axial mode adapts to diameters above 200mm, and circumferential mode adapts to diameters above 200mm.

Improves inspection efficiency and quality, making it suitable for weld inspection of various pipeline specifications.

### FC30 Weld Inspection Scanner



This scanner, with its standard configuration, allows for the installation of four probes and can be expanded to accommodate up to eight probes, providing flexible and adaptable inspection solutions based on detection needs.

#### Core Features

**Magnetic Adhesion Technology:** Four magnetic wheels ensure secure attachment to the magnetic surface of the pipeline, specifically designed for circumferential weld detection.

**Swing Joint Design:** The swing joint at the central position allows users to easily adjust the probe holder, ensuring precise coupling with the pipeline surface.

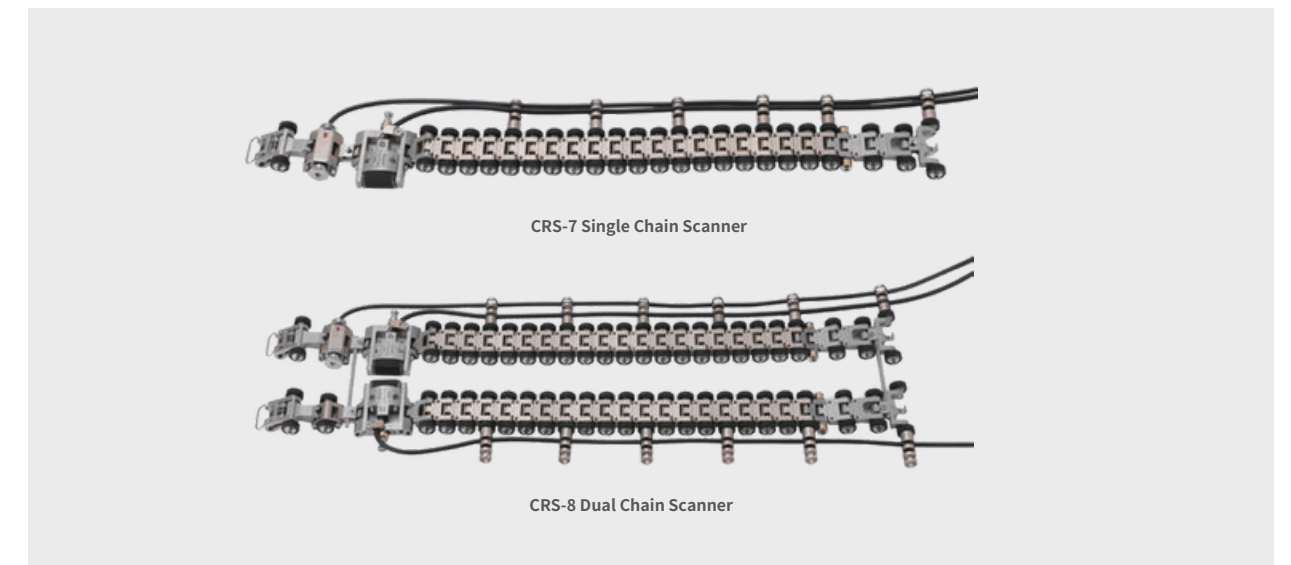
**Laser Indicator:** Provides accurate guidance to the inspection area, offering reference markers that significantly improve both the accuracy and convenience of the inspection.

**Wide Applicability:** The scanner is suitable for pipes with a minimum diameter of 110mm, compatible with various pipe specifications, supporting a wide range of weld inspection tasks.

## Pipeline Manual Chain-Type / Small Diameter Pipes (φ20-114mm) / Standard Model (Width ≥ 256mm)

### CRS-7 (SingleChain) / CRS-8 (DualChain)

### Small Diameter Pipe Weld Inspection



#### CRS7/8 Product Features

The slim and flat chain structure is specifically designed for extremely small inspection spaces, allowing it to pass through pipe gaps as small as 13mm.

Highly modular design, including the scanner main frame, encoder, quick-release chain module, and locking block. The effective combination of these components ensures flexibility and reliability when inspecting pipes of different diameters.

By adding or removing chain components, the device can be quickly adjusted to fit different pipe sizes without the need for complex tools, significantly improving work efficiency.

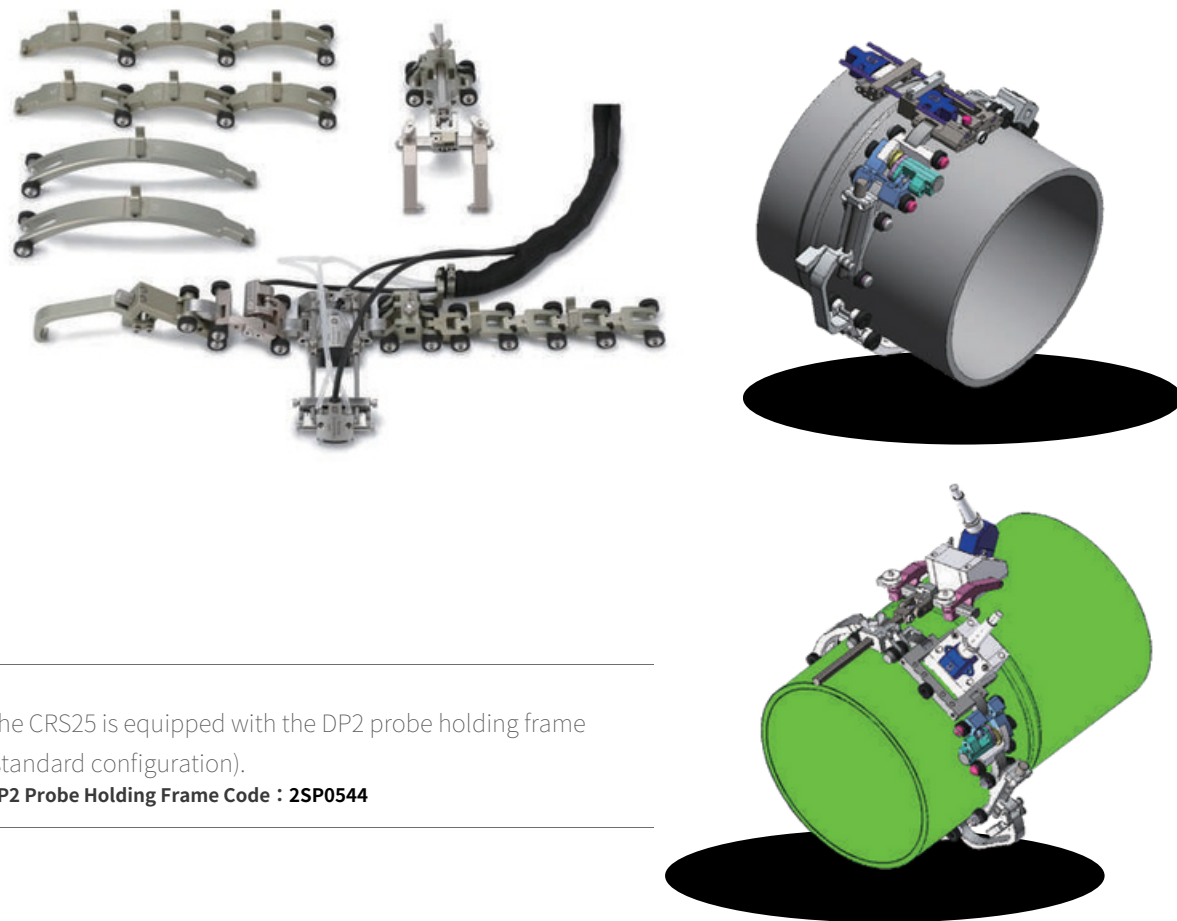
The quick-release chain design simplifies the assembly process, reduces the need for specialized tools, and enhances both ease of use and accuracy during operation.



## Pipeline Manual Chain-Type / Medium Diameter Pipes (Φ50-300mm)

### CRS-25 Medium and Small Diameter Pipe Weld Scanner

The CRS-25 is an efficient inspection tool specifically designed for detecting circumferential welds on medium and small diameter pipes ranging from 50 to 300mm. This scanner is lightweight and durable, equipped with a quick-release chain, greatly enhancing convenience for users in terms of both usage and portability.



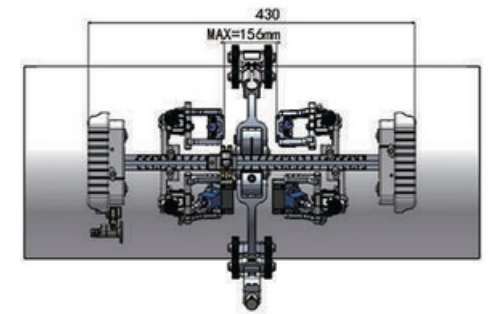
The CRS25 is equipped with the DP2 probe holding frame (standard configuration).

**DP2 Probe Holding Frame Code : 2SP0544**

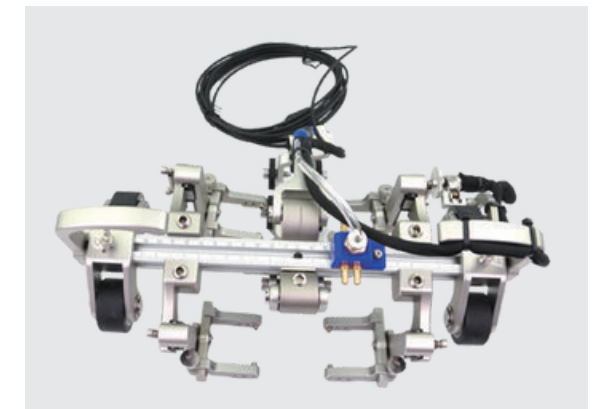
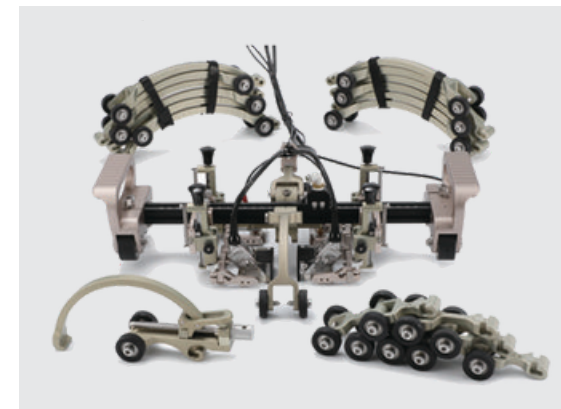
## Pipeline Manual Chain-Type / Large Diameter Pipes (Φ200-1220mm)

### MOS04 Large Diameter Scanner

The MOS04 multi-probe long-distance pipeline weld scanner is developed to meet the demands of high-efficiency, large-area weld inspection. It combines specialized detection modes, a highly compatible probe holder, multi-probe configurations, excellent waterproof performance, and a quick-release chain design, offering outstanding performance and significant convenience for long-distance pipeline inspection tasks.



*Wide Pipe Diameter Compatibility:* The scanner is suitable for both magnetic and non-magnetic materials and adapts to a wide range of pipe diameters, from Φ200 (Φ200mm) to Φ1220 (Φ1220mm). Other specifications can be customized upon request to ensure versatility in various pipeline inspections. *Multi-Mode Support:* Supports both PA and TOFD detection simultaneously, providing flexible options for different inspection scenarios.



**High Compatibility Probe Holder:** The probe holder is compatible with wedges or probes with a maximum width of 46mm, ensuring adaptability with a variety of inspection equipment. **Multi-Probe Configuration:** It can hold up to four probes simultaneously, significantly improving inspection efficiency and data acquisition speed, making it especially suitable for high-efficiency inspection tasks.

**IP67 Encoder Waterproof Rating:** The high standard waterproof performance ensures reliable operation of the device in humid and underwater environments. **Quick-Release Chain Design:** The quick-release chain design allows for easy replacement of the chain, enabling operators to quickly switch between different pipe diameters, improving convenience and efficiency during on-site operations.

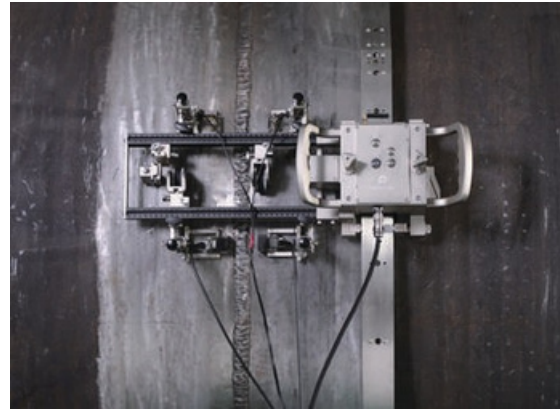
03

SCANNER  
PRODUCT

## Various Electric / Pipeline Circumferential Welds / Rail-Type

### DSC27 Pipeline Circumferential & Axial Weld Scanner

This scanning device is equipped with compatible pipeline rails for use. The main body of the scanner is a remote-controlled crawler, suitable for both metallic and non-metallic round pipes. The steel band rail is fixed onto the circular workpiece, and the crawler is mounted onto the rail. It can carry multiple pairs of probes to inspect the welds of the workpiece. (Note: Different pipe diameters require different rails.)



#### ☑ Performance Features

Applicable to pipes with an outer diameter  $\geq 400\text{mm}$

Crawler speed range: 0.2~2.36in/sec (5~60mm/sec)

Waterproof rating: IP65

Operating temperature:  $-4^{\circ}\text{F} \sim 122^{\circ}\text{F}$  ( $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ )

Power supply voltage range:

When using AC mains power, 110V AC or 220V AC. Users should provide the local mains voltage before ordering to ensure proper factory setting of the appropriate operating range.

When using batteries, the voltage range is 20~30V, with a maximum current of at least 10A. The crawler's power module will automatically adjust to the supplied voltage.

## Nozzle Weld Scanner

### MOS07 Nozzle Weld Scanner



The MOS07 is specially designed for the detection of complex pipe seat welds, providing precise inspection data.

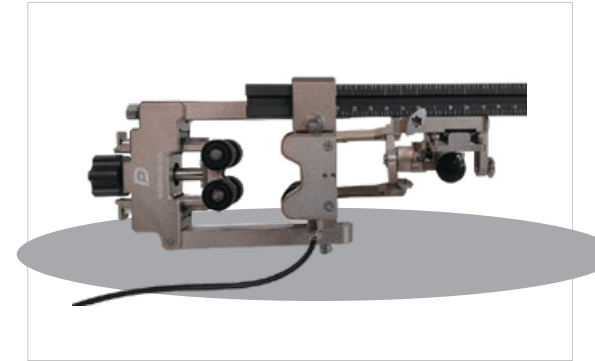
Its flexible probe holding system can securely support a probe with a maximum clamping width of 48mm, compatible with various probes.

Custom weld angles: The probe angle can be adjusted based on the weld angle to ensure optimal coupling.

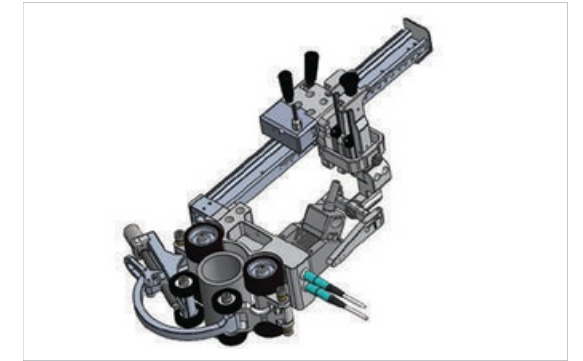
Quick chain replacement: Featuring a quick-release chain design, operators can quickly and easily switch between different pipe diameters, greatly improving on-site operational efficiency.

Dual Encoder Configuration: The standard model is equipped with two encoders. One is installed on the chain to record the position information of the branch pipe, while the other is mounted on the probe's stepping axis. This setup ensures the accuracy and reliability of the inspection results.

IP67 Protection Rating: The encoders are designed with high waterproof performance, allowing the equipment to operate stably even in humid and underwater environments. This enhances the equipment's environmental adaptability and durability.



Custom Model for Small Pipe Diameters: Supports inspection of branch pipe diameters from  $\Phi 20\text{mm}$  to  $\Phi 50\text{mm}$  and main pipe diameters above  $\Phi 500\text{mm}$ .



Standard Model: Supports inspection of branch pipe diameters above  $\Phi 50\text{mm}$  and main pipe diameters above  $\Phi 500\text{mm}$ . This model covers most industrial pipe sizes, offering more possibilities for pipe inspection across various scales.

### DSC52 Boiler Heat Exchanger Tube Plate Weld Electric Scanner



This weld scanning device is primarily used for detecting the angle welds of boiler heat exchanger tube plates and is suitable for inspecting internal welds with an internal diameter of 25mm and above. The rotating mechanism, powered by an efficient drive system, enables the probe to rotate fully around the pipe center, ensuring precise weld inspection. The drive unit integrates a commutator, gearbox, and encoder, providing strong power while effectively preventing probe cable entanglement, thereby improving both inspection efficiency and safety.

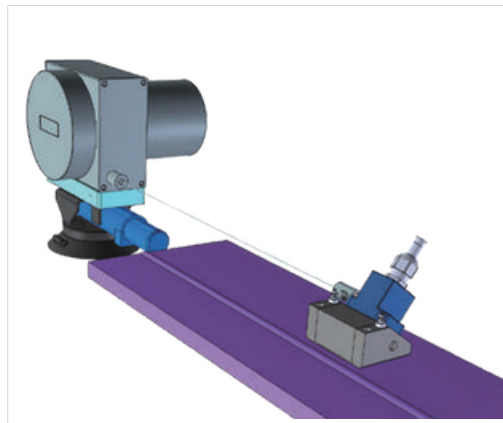
## Encoder

### ENC-10 wheel encoder



This compact encoder is specifically designed for modern industrial inspection needs, offering miniaturization, high adaptability, and strong durability. It is compatible with various probes, providing great flexibility to meet different inspection requirements. Its compact size makes it suitable for space-constrained or structurally complex working conditions. With an IP67 dustproof and waterproof rating, it ensures reliable operation in harsh environments. When used with specialized accessories, it allows for 90° angle adjustments, offering multiple detection angle options. The steel wheel rolling design ensures smooth operation and slip resistance, while also supporting wheel replacement to adapt to special surfaces. It is widely used in industries such as aerospace, automotive manufacturing, and petrochemical, making it an ideal choice for improving inspection efficiency and accuracy.

### LX14 rope encoder

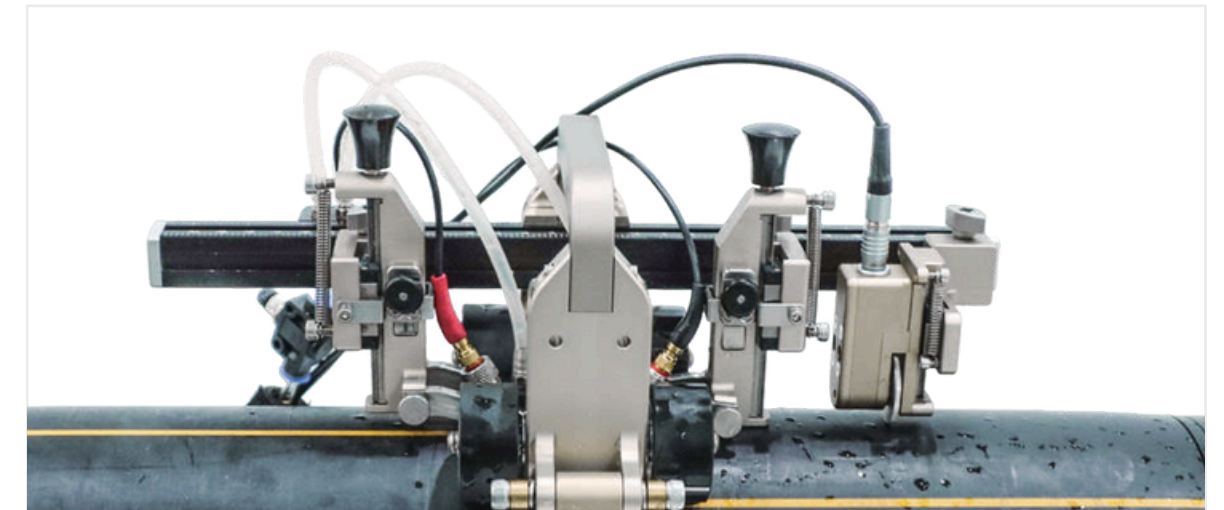


This multifunctional compact inspection accessory is designed to enhance industrial inspection efficiency and accuracy, and is widely used in industries such as aerospace, automotive manufacturing, and petrochemicals. It features an aluminum alloy housing, making it lightweight, durable, and easy to carry on-site. The compact design is ideal for environments with limited space. The U-shaped slot at the end of the pull cord supports quick connection to various probes or scanners, increasing flexibility. The side magnets and bottom vacuum suction cup provide dual stability, preventing slipping. With an encoder stroke of up to 1000mm, it offers ample adjustment space to meet different inspection needs, making it an ideal tool for on-site inspection engineers.

## PE Pipe Butt Joint Inspection

### Mos05-D PE Pipe Heat Fusion Scanner

MOS05-D special scanner for hot-melt butt joint inspection is an efficient tool designed for PE pipeline maintenance and quality assurance.



Efficient quick-release chain

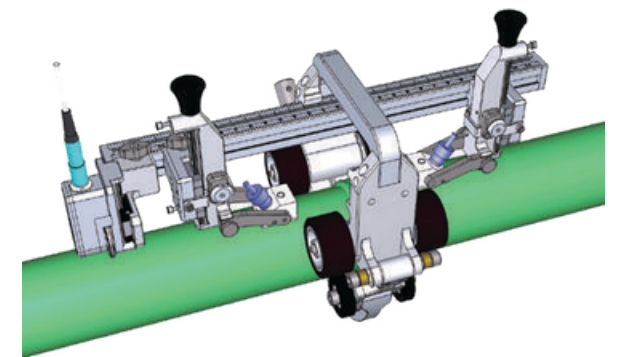
The convenient quick-release chain design enables operators to quickly adjust the chain length to adapt to different working environments and improve working efficiency.

Adequate radial clearance

A radial clearance of at least 120mm is needed to place and operate the scanner, which ensures sufficient space for operation in the detection process and improves the flexibility and convenience of use.

Wide pipe diameter applicability It is suitable for PE pipes with diameters ranging from  $\phi$  60mm to  $\phi$  400mm, covering most common pipe diameters, which provides great convenience for pipeline inspection of various scales.

TOFD probe compatibility Specially designed to clamp the TOFD probe matched with the hot melt defect detection of PE pipe to ensure the professionalism and accuracy of the detection process.



03

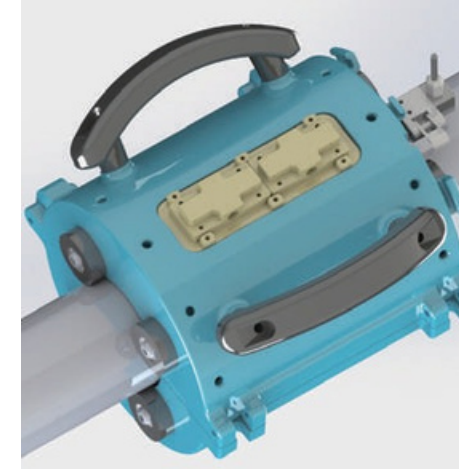
SCANNER  
PRODUCT

## Mos05-B PE Pipe Electrofusion Scanner



MOS05-B is specially designed for the detection of electric welding joint of PE pipeline, which is suitable for the detection of coaxial reducing pipeline, and the probe and wedge can be flexibly matched. IP67 protection level ensures stable operation in wet environment and improves durability. Suitable for pipe diameter detection from  $\Phi 90\text{mm}$  to  $\Phi 400\text{mm}$ , other specifications can be customized.

## PE01 PE Pipe Electrofusion Joint Scanner



### ☑ Components

**Water Bag:** Custom-made according to the workpiece size, paired with a specialized sealing ring to ensure the water chamber is airtight, achieving excellent acoustic coupling.

**Probe:** Multiple models are available to meet the requirements of different inspection processes.

**Support Wheels:** Ensure the water bag remains stable and assist its smooth movement across the workpiece surface, enabling comprehensive inspection.

**Customization Service Range:** This scanner can be customized to support pipe diameters ranging from 32mm to 90mm, meeting various application needs.



### ☑ Product Advantages

Ensures excellent coupling performance between the probe and the workpiece, improving inspection accuracy.

Designed to avoid obstacles on the workpiece, ensuring an uninterrupted inspection process.

Highly adaptable, offering customized solutions for various pipe sizes.

The encoder provides precise positioning, simplifying subsequent data analysis.