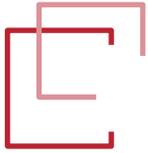




**PIPELINE INTERNAL FIELD JOINT  
COATING ROBOT**

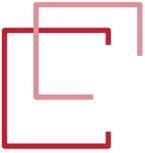
2026.01



The pipeline internal field joint coating robot is like a group of small trains connected in series, which could be functionally classified as tractors, shot blasting, vacuum recycling, anti-corrosion coating and inspection carriages.

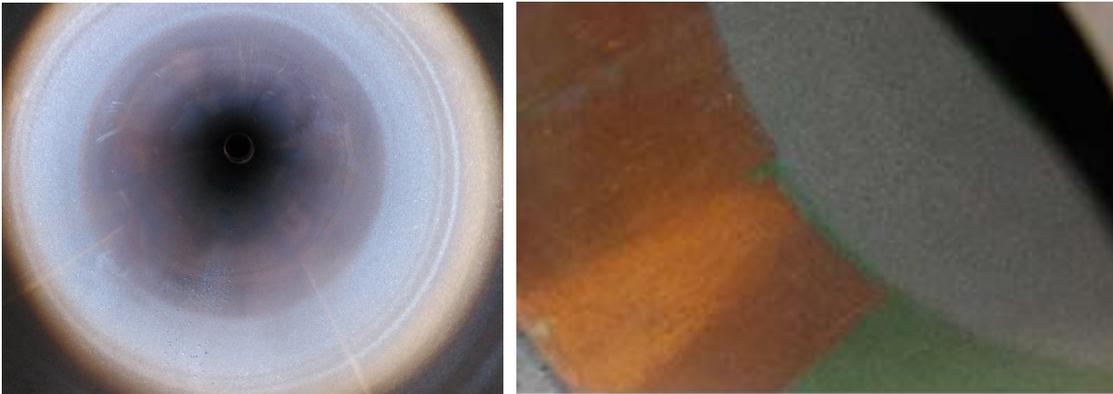


Strengthens the typical anti-corrosion method by performing shot blast cleaning, paint spraying and checking on the internal weld of the newly built pipeline.



## Shot blasting

Through wireless remote control, with a high-definition camera, the robot enters the pipeline accurately to locate the weld, then the joint area will be centrifugal blasted with mixture of steel grits and shots to a proper surface and prepare for the coating applying, and the overlapping areas on both sides are pulled, and the weld and reserved area are anchored. The technology of blast helps adhesion of anti-corrosion coatings.



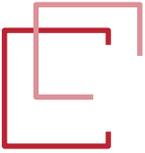
Pipe diameter:  $D=\Phi 273\text{mm}$  and above

Cleanliness: Sa 2.5, anchor pattern 40-80 $\mu\text{m}$

Positioning accuracy:  $\pm 5\text{mm}$

Climbing angle:  $\leq 15^\circ$

Working distance: 500m one time



# Vacuum recycling

After blasting, the abrasive materials left on the internal pipe surface will be thoroughly recycled by vacuum recycling robot and no excessive residue will be left on the pipe internal surface.

Pipe diameter:  $D=\Phi 219\text{mm}$  and above

Positioning accuracy:  $\pm 5\text{mm}$

Climbing angle:  $\leq 15^\circ$

Working distance: 500m one time

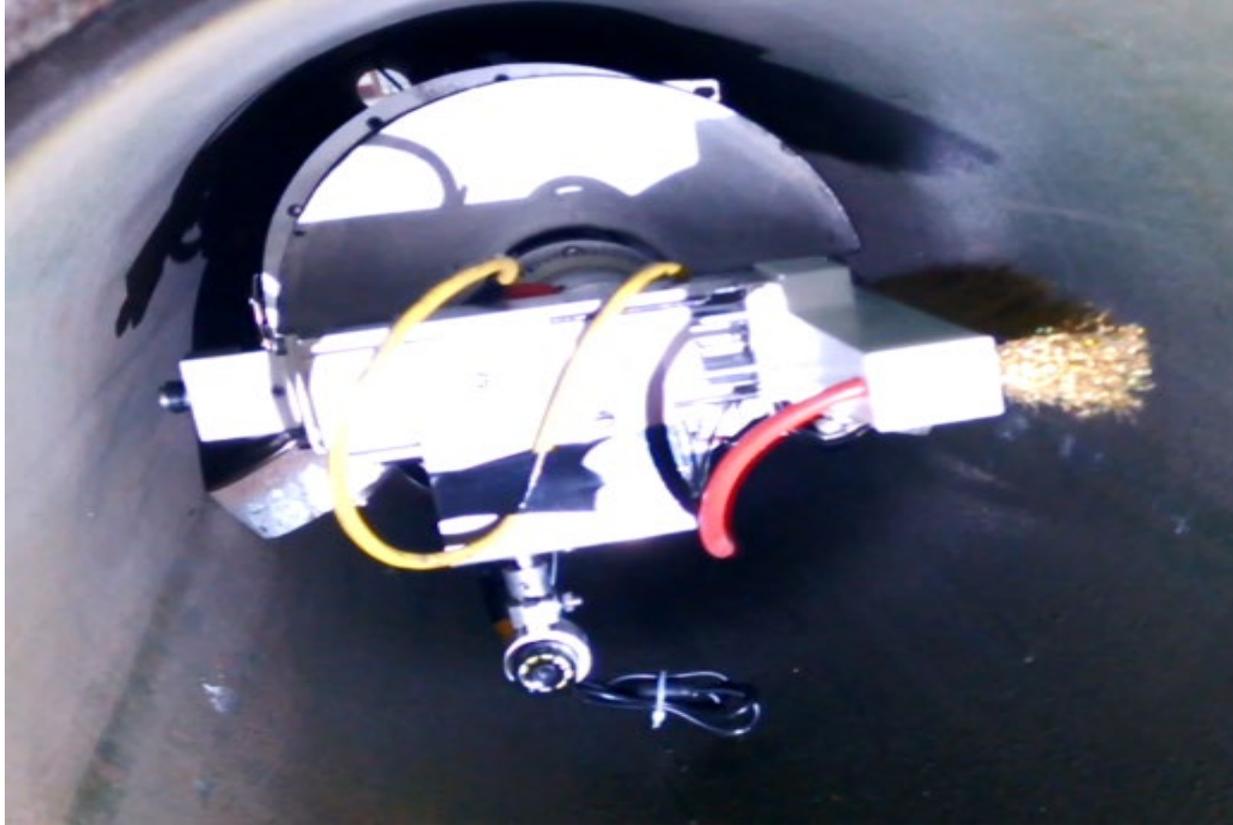
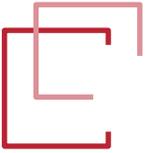


## Anti-corrosion coating

The curing agent and the epoxy coating are respectively installed in the silo with heating function, and the operator accurately position the spraying robot at the weld seam by the real-time video image returned by the high-definition camera, and perform the coating operation according to the requirements of the coating manufacturer.



Pipe diameter:  $D=\Phi 159\text{mm}$  and above  
Coating thickness: 0-1200 $\mu\text{m}$   
Coating width: 0-350mm  
Positioning accuracy:  $\pm 5\text{mm}$   
Climbing angle:  $\leq 15^\circ$   
Working distance: 500m one time



## Inspection

After curing of the applied coating, the inspection robot enters the pipeline, the inspection robot will conduct visual inspection, holiday detection and coating thickness measurement to the applied internal field joint coating, all application data, inspection results and readings will be recorded in Daily Production and Inspection Report.

Pipe diameter:  $D=\Phi 159\text{mm}$  and above

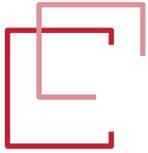
Positioning accuracy:  $\pm 5\text{mm}$

Climbing angle:  $\leq 15^\circ$

Working distance: 500m one time

Holiday detection voltage: 0-25KV

Thickness range: 0-1250 $\mu\text{m}$



# Advantages of robots

01

The on-site coat can be cross-constructed with the pipeline installation department, and the spray-filling construction can be completed by using the intermittent time of the installation department, making it easier for the cooperation between the various processes at the pipeline installation site. It can also extend pipeline's life, reduce internal corrosion, reduce the friction between the pipe wall and the medium, reduce the need for pipe wall thickness, reduce or eliminate pipe leaks and protect environment.

02

The Robot can make high-viscosity solvent-free paints as special coatings, which can reduce the number of coating and shorten the construction length, the construction conditions and supporting facilities for the environment are not demanding. What's more, the construction speed is fast, and the quality is easy to be controlled.

03

Energy consumption is low with electric drive. A small power generator, or a battery pack of a certain capacity can provide sufficient power supply in the field construction. On the site, the robot adopts a visual optical positioning system, the positioning is accurate, intuitive and convenient, and the scientific detection means can effectively guarantee the quality of the anti-corrosion engineering.



The first phase of the water pipe network laying  
in the underground integrated pipe gallery--  
Pingtan Comprehensive Experimental Zone,  
Fuzhou, Fujian

Pipe diameter: 159 X 4/219 X 6/325X8/426 X 8/529X8/630 X  
10/820X10/1020 X 12/1220 X 14

Conveying medium: drinking water / Reclaimed water / sewage

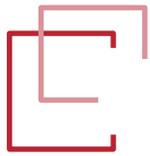
Total mileage: 28.6 KM

Number of welds: 159-3/219-133/325-2873/426-1258/529-  
318/630- 1557/820-285/1020-244/1220-346 (Total 7017)

Process: Wire brush grinding and rust removal (St3) + Spraying  
in two-component coating (dry film 350 microns)

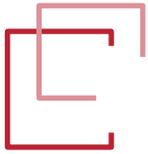
Coating: Solvent-free two-component epoxy resin coating (2:1  
by volume)





# Sichuan Anyue Gas Purification Water Pipeline





# China Air Force Test Flight Academy (Xi'an Yanliang) Pipe Network

