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Anton Testing Technology

东方智慧 全球分享
Oriental wisdom , Global sharing

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- 02** Nondestructive Testing Technology for Oilfield
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1. Overview of Testing Technical Capability

- It has comprehensive service capability of safety inspection and evaluation of equipment and facilities in the whole process of oil and gas exploration, development and production.



Advantage:

- It can acquire certificates from authoritative organizations including API, DNV, CNAS, CMA, ASNT, etc.;
- It provides non-destructive testing technical services for various types of oil drilling and production equipment, facilities, tools, etc.;
- The API workshop standard maintenance service with independent intellectual property rights realizes the integrated and efficient cleaning, testing and repair services of tubing, casing and drilling tools.
- It is the pioneer to introduce Air Sealing testing technology in China, and was the formulator of domestic industry standards.;
- It provides comprehensive pipeline technical services including internal inspection, external inspection, corrosion monitoring, tank inspection, anti-corrosion engineering and maintenance, safety comprehensive evaluation, etc.;
- It has more than 400 oil field measurement and testing capabilities.



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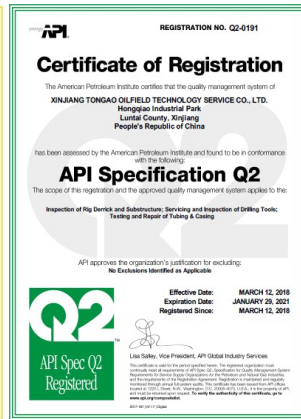
2. Nondestructive Testing Technology for Oilfield

Qualifications

- CNAS-L3685 and CMA qualifications, nondestructive testing qualifications is approved by the China Association of Special Equipment Inspection of the State Administration of Market Supervision and Administration
- API-Q2 system certification and DNV-GL nondestructive testing system certification
- The inspectors have qualification certificates of nondestructive testing of ASNT, ChSNDT and China Quality and Technical Supervision Bureau.
- It has more than 20 patents for invention and utility models
- There are more than 100 testing technicians and 15 testing teams, including 5 overseas testing teams.

Service Items and Performance

Service item	Service details
Testing and evaluation of oilfield special equipment and facilities	Tanks, tankers, compressors, camping generators, various types of high-pressure containers, etc.
Testing and evaluation of drilling tools	Drilling tools and various tools
Repair and anti-wear of drilling tools	
Design and manufacture of drilling tool maintenance production line	
Testing and evaluation of wire rope	
Testing and evaluation of rig derrick	
Nondestructive testing technology testimony and consultation	Testimony of technical service
	Technical consultation service



Performance:

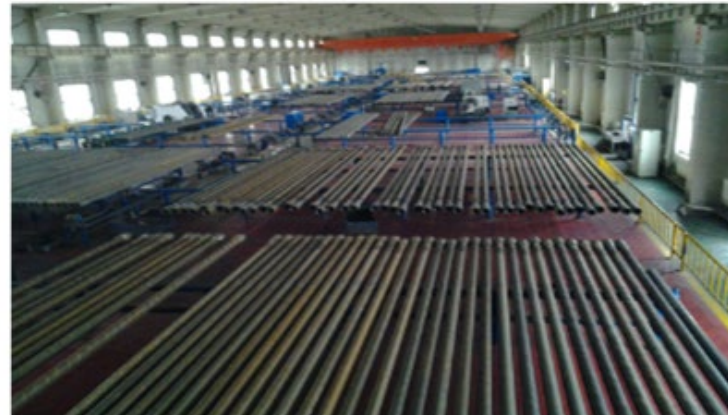
- Major domestic customers: Tarim Oilfield, Yumen Oilfield, Western Drilling, Chuanqing Drilling, Great Wall Drilling, Bohai Drilling, etc.
- Major international customers: Kazakhstan, Colombia, Iraq, Chad, Ethiopia and other international oilfield companies

Service Scope

Testing and grading of drilling tools such as collars of all specifications, weighted drill pipes, drill pipes, square drill pipes, stabilizers, full-size switching joints and lifting joints; nondestructive testing of drilling tools, cementing tools, completion tools, well control tools, etc.

Technical Feature

It has the service mode of "workshop + field"; provides menu-type testing technology scheme, increases or decreases the testing content according to customer's needs; has the ability to implement various testing standards at home and abroad to meet requirements of domestic and foreign oilfield management; independently develops special testing equipment, has obtained more than 20 patents and has rich on-site testing experience.



Service Scope

It is suitable for repair service of various drill pipes, weighted drill pipes, drill collars and tool joints; suitable for wear-resistant band welding service of various drill pipes and weighted drill pipes.

Technical Feature

It has advanced CNC lathes, pipe threaded lathes, imported tools and special gauges; self-developed mobile skid-mounted modular repair system with national invention patents, which can provide drilling tool repair services on well site; it has advanced and perfect repair technology, scientific and standardized quality management system; self-developed FYH series wear-resistant belt automatic laying and welding system (patent No. ZL 012 70687.6); it provides professional ARNCO series flux core wire coating service (American Emcore certification service provider) and alloy powder coating service.

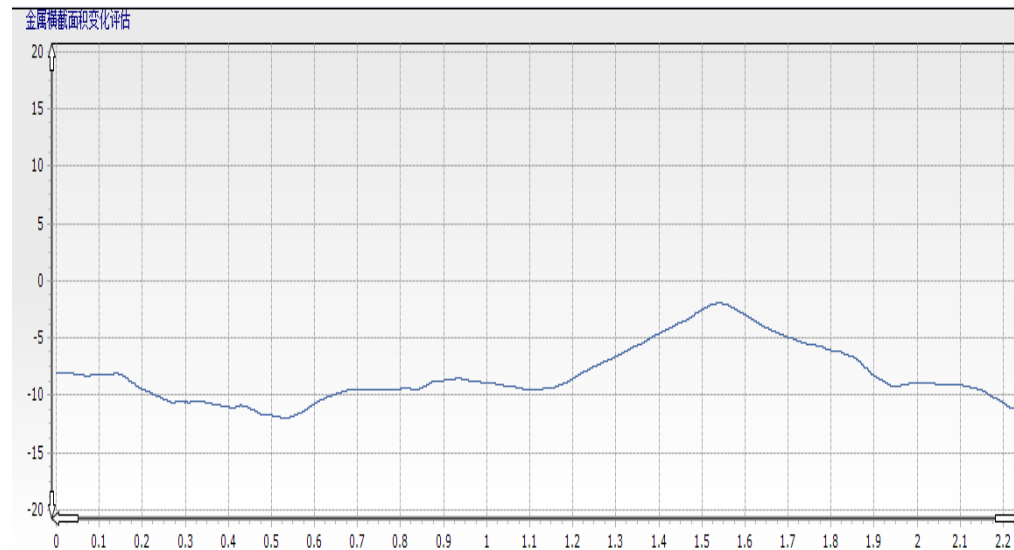


Service Scope

Steel wire of 8mm~85mm specification.

Technical Feature

It has the most advanced steel wire testing equipment in China with testing speed of more than 4m per second. The detection speed is fast and the sensitivity is high.

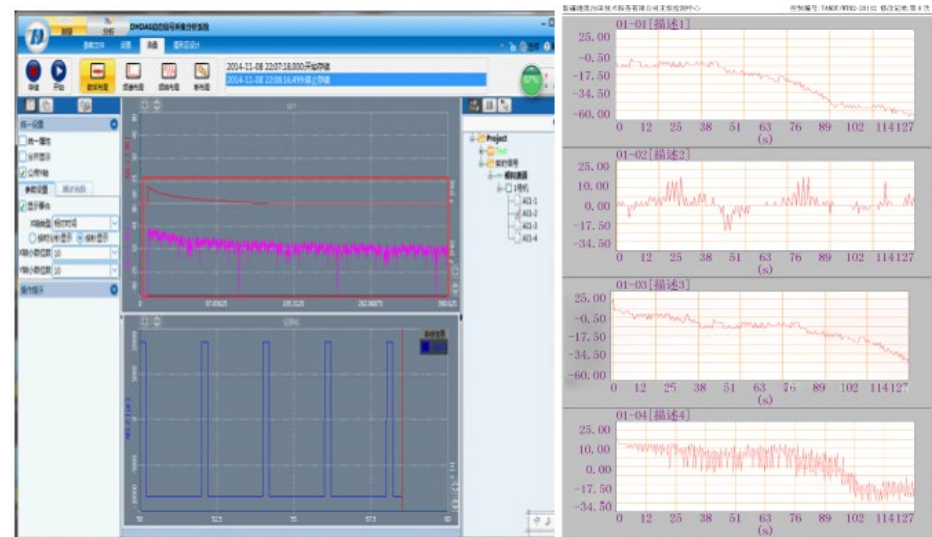


Service Scope

It is suitable for all kinds of domestic and foreign drilling rigs and ancillary facilities; suitable for all kinds of domestic and foreign workover rigs and ancillary facilities; suitable for and all kinds of drilling rigs, workover rigs and ancillary facilities after accident handling and repair.

Technical Feature

Comprehensive testing and evaluation scheme, systematically put forward early warning and usage suggestions; software analysis model of dynamic and static testing data under derrick hook load to comprehensively evaluate safety; modular customized testing scheme to meet customers' on-site needs



井架的动静态平衡测试数据采集分析

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3. Testing and Repair of Tubing and Casing

Qualification

- API-Q1/Q2, API-5B/5CT certification
- The only service provider with the capability of integrated tubing and casing service (warehousing logistics, inspection, repair, anti-corrosion, gas tightness testing, on-site operation supervision, etc.) in China
- Special thread technology authorization for domestic and foreign well-known steel works (international: Japan JFE Steel; domestic: , Tianjin Iron & Steel, Jiangsu Changbao, etc.)
- There are 17 thread inspectors, 40 personnel with ChSNDT qualification and 8 with ASNT qualification.
- Three overhaul workshops, six production lines, 280 CNC lathes, automatic ultrasonic flaw detector, magnetic flux leakage flaw detector, coupling twisting machine, hydrostatic pressure tester, etc.

Service Items and Performance

Service item	Service detail
Integrated service	Full-process services such as tubing procurement, storage logistics, repairing, anti-corrosion, on-site technical services, etc.
API-workshop standard oilfield machine repair service	
Inspection/repair of tubing and casing	
Fine machining service	All kinds of tubing and casing accessories
	All kinds of special downhole tools
Anti-corrosion Technical Service	Production and sales of coatings
Anti-corrosion of conveyor pipe	Internal and external pipe anti-corrosion technical service
Sales of tubing casing products	

Performance:

- Major customers: Tarim Oilfield, Northwest Oilfield, Schlumberger, Beckhughes, Western Drilling, Chuanqing Drilling, Great Wall Drilling, Bohai Sea Drilling, Central Plains Drilling, Jiangnan Oilfield, etc.
- API workshop EPCC project in Hafaya Oilfield, Iraq
- Over 1.6 million tubing and casing has been repaired



Service Scope

All kinds of tubing (casing) pipes
EPCC service of tubing (casing) inspection and repair automation workshop

Technical Feature

It strictly abides by API specifications to ensure downhole safety of every tubing (casing) pipe; it has independently designed automatic maintenance production line with unique features, which is reliable, fast and efficient; provides EPCC (design, procurement, construction, operation) general contracting services; obtains technical authorization from Baosteel, Tianjin Iron & Steel, Japan JFE and other domestic and foreign well-known steel mills, and the testing and repairing capacity acquires fully recognition; self-developed core maintenance equipment has obtained 18 domestic patents



3.2 API-workshop Standard Oilfield Maintenance Service

Service Scope

API workshop overhaul EPCC service of full-size petroleum pipe (pipe, casing, drill rod, sucker rod, etc.)

API workshop overhaul EPCC service for full-scale oil drilling and production tools (downhole tools, wellhead tools, production trees, short sections, etc.)

Provide third-party service platform and integrating high-quality resources

Technical Feature

It strictly abides by API specifications to ensure petroleum pipes and tools meet API requirements; provides EPCC (design, procurement, construction, operation) general contracting services; obtains technical authorization from Baosteel, Tianjin Iron & Steel, Japan JFE and other domestic and foreign well-known steel mills, and the testing and repairing capacity acquires fully recognition; self-developed core maintenance equipment has obtained more than 30 domestic patents

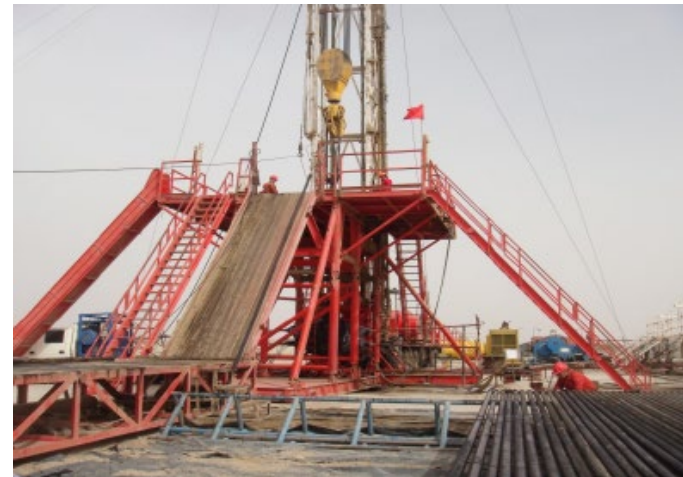


Service Scope

Testing and repair of tubing series (2-3/8" ~ 4-1/2"), casing (4-1/2" ~ 20"), wellhead tubing (2-3/8" ~ 4-1/2"), coiled tubing (1" ~ 3-1/2").

Technical Feature

Q1, Q2 and 5CT certification issued by the American Petroleum Association (API). It strictly abides by API specifications to ensure petroleum pipes and tools meet API requirements; provides EPCC (design, procurement, construction, operation) general contracting services; obtains technical authorization from Baosteel, Tianjin Iron & Steel, Japan JFE and other domestic and foreign well-known steel mills, and the testing and repairing capacity acquires fully recognition.



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Qualification

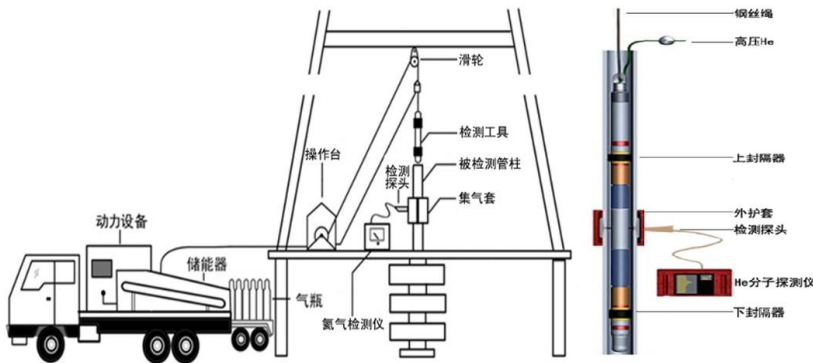
- It passes DNV Air Sealing testing equipment and process evaluation (80556000) and China special equipment use certification (CNT-130 accumulator)
- It is the initiator, founder and standard drafter of Air Sealing testing technology for tubing and casing in China, and has independent core intellectual property rights.
- It has more than 20 national invention patents, and has independent intellectual property rights
- It has 23 sets of self-developed testing equipment
- It has more than 80 testing engineers, 12 professional teams with annual testing capacity of 600 times
- It has more than 10 years of on-site testing experience

Service Items and Performance

Service item	Service detail
Air Sealing testing technology	Air Sealing testing technology for downhole pipe string
	Air Sealing testing technology for ground facilities

Performance :

- Major customers: Tarim Oilfield, Southwest Oil and Gas Field, Daqing Oilfield, Gas Storage, etc.
- It has tested more than 1600 wells for 470,000 times.

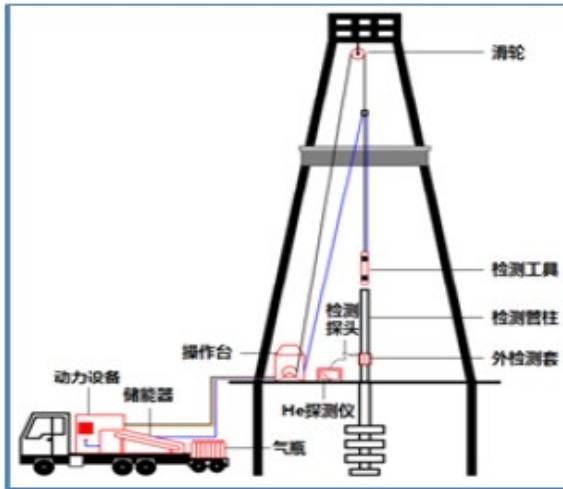


Service Scope

It is suitable for all kinds of natural gas wells, gas injection wells, gas storage, shale gas wells; suitable for all kinds of air-sealed tubing (casing) pipes, short joints, pillars, all kinds of pipelines; suitable for all kinds of drilling rigs, workover rigs, offshore platforms and other conditions; suitable for working environment in desert, mountain, ocean and other harsh environment.

Technical Feature

It can measure air sealing under 120 MPa pressure and meet high standard requirement. It is more accurate to quantitatively describe the air sealing with the seepage flux of small molecule helium. The single point testing is fast and can reach 1.5 minutes. It is more reliable to detect the factory end and the field connection end of tubing (casing) coupling together.

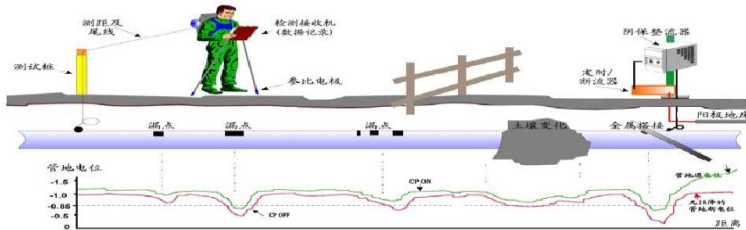


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Qualification

- Qualifications of anti-Corrosion construction (grade 1) and general contracting (grade 3) of petrochemical engineering in China MFL and NDT qualifications approved China Association of Special Equipment Inspection of the State Administration of Market Supervision and Administration
- Develop in-house inspection and pipeline integrity services in strategic cooperation with Shenyang University of Technology and Intertek
- Strategic cooperation with Sichuan Yutong and Shandong Special Inspection Institute to develop technical service of pipeline overall inspection (DD1)
- 96 sets of internal corrosion and leakage testing equipment, 78 corrosion testing engineers, 6 professional technical service teams for internal corrosion testing and leakage assessment
- There are 3 field pipeline inspection teams, 2 cathode project installation teams and 2 pipeline external protection repair teams.



Service Items and Performance

Service item	Service detail
Nondestructive testing technical service for new pipeline	Nondestructive testing of pipelines
	New pipeline pass-through
In-service pipeline testing technical service	Pipeline internal inspection
	Pipeline external inspection
	Leakage testing and monitoring
	Suitable for use evaluation
Pipe integrity management	
UAV application technical service	
Operation, maintenance and construction service of cathodic protection system	Cathodic protection and system operation effectiveness evaluation service

Performance:

- Main customers: Tarim Oilfield, Southwest Oil and Gas Field, Western Pipeline, Southwest Pipeline, etc.
- It has more than 10 years of industry service experience, and accumulates pipeline testing of more than 20,000 kilometers .

5.1 Pipeline External Corrosion Testing Technology

Service Scope

It is suitable for all kinds of in-service oil and gas pipelines; suitable for oil and gas gathering and transportation stations, storage and transportation stations, booster stations, cathode protection stations, etc.

Technical Feature

It has a variety of testing technology for accurate positioning of corrosion points; in-service field testing ensures no digging or suspension of production; provides overall pipeline testing and integrated services; provides pipeline testing and anti-corrosion engineering construction services.



5.2 Pipeline Internal Corrosion and Leakage Corrosion Testing Technology

Service Scope

It is suitable for all kinds of crude oil, refined oil and natural gas pipelines; suitable for all kinds of urban natural gas, water supply, drainage and thermal pipelines.

Technical Feature

Pipeline internal corrosion testing technology: magnetic flux leakage (MFL) and electromagnetic ultrasound (EMAT) dual testing technology, with high reliability of defect testing; multi-channel coordinate positioning can accurately locate defects; equipment operation speed can reach 5 m/s, single operation mileage can reach 1000 km with high testing efficiency
Pipeline leakage testing technology: It is efficient and fast without pigging, and maximum cruising ability of battery is 110 hours; provides real-time acquisition of data, rapid testing results with high degree of intelligence; adapts to high temperature, variable diameter, bending and other complex working conditions with high reliability.



Service Scope

Petroleum and petrochemical industry in safety inspection, geomorphological survey, enterprise equipment safety, etc., energy survey, pipe/pipeline selection, line inspection, monitoring, oil well location selection; oil spill accident monitoring, etc.

Technical Feature

Target testing: Intelligent testing is used to determine abnormal targets, such as vehicles, tents, houses, pits, cracks, etc.

Contrast testing: Contrast change of images when time sequence of the two flights are roughly in the same position, such as landslide, soil upset.

Manual re-test: In addition to intelligent recognition of specific targets by software, it can be manually re-examined, adding marking, deleting non-abnormal targets and other pipeline leakage testing technologies.



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Qualification

- CNAS-L6393 350 calibration/testing items
- 41 evaluation items of measurement building standard and 16 authorization items of compulsory measurement
- More than 300 person-time/item measurement verification, F1/F2 verification and maintenance qualification, 35 middle and senior testing engineers
- 398 sets of equipment with testing capacity of 1200 pieces per day



Service Items and Performance

Service item	Service detail
Measurement testing	Design of testing/ calibration measurement management scheme
	Instrument calibration/testing
	Inspection of security equipment

Performance:

- Domestic customers: Tarim Oilfield, Southwest Oil and Gas Field, Qinghai Oilfield, Western Drilling, Bohai Sea Drilling, etc.
- International customers: Iraqi Hafaya Oilfield, Iraqi Buzurgan Oilfield, Great Wall Drilling, CNOOC Suit, etc.
- Non-oilfield customers: more than 400 enterprises covering food, medicine, machinery, electronics, electricity, chemical industry, etc.
- A total of 300,000 pieces of various instruments and equipment have been tested, verified and calibrated.

Service Scope

Six categories of measuring instruments and equipment: geometry, thermology, mechanics, electricity, chemistry, optics; various types of security equipment: safety valve, positive pressure respirator, safety regulation testing; instrument and equipment testing/calibration data analysis, troubleshooting solution

Technical Feature

One-stop solution to various types of equipment testing/calibration needs; provide on-site + laboratory testing, flexible and efficient services; improved information service system achieves control in the whole process; provide program design and technical advisory services.



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THANKS!

Helping others succeed...