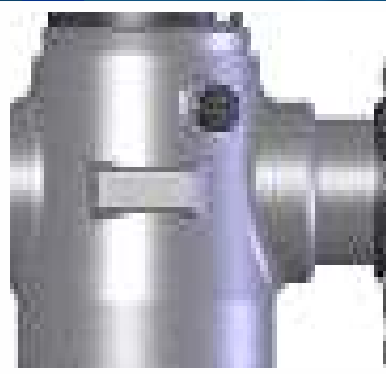
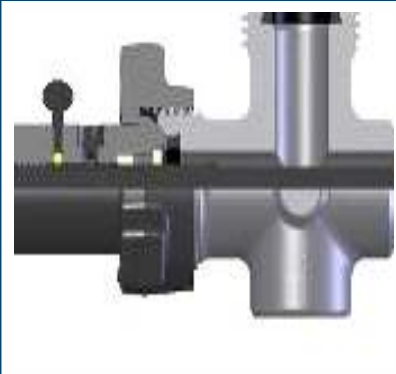
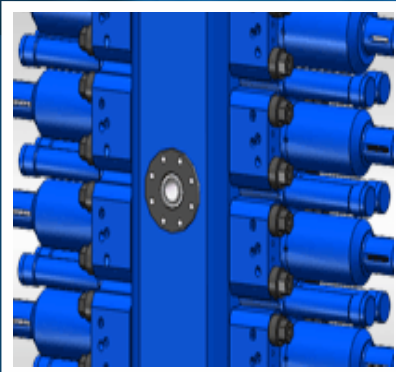




FRACSERVE AFRICA LLC

RC: 1051176

ROBUST INSPECTION & REPAIR SERVICES



CORPORATE BROCHURE



... Innovated Ingenuity

Executive Summary



FRACSERVE AFRICA LLC

RC: 1051176

... Innovated Ingenuity

FRACSERVE Africa LLC is a 100% indigenous Nigerian company incorporated in 2012 and operating from its world-class purpose built ultra-modern facility (Office + Base) in Port-Harcourt.

FRACSERVE Africa LLC is a reputable company operating with the best international standards and delivering topnotch professional value-added services to its client in the Oil & Gas Industry in a safely manner.

MISSION

To provide topnotch world-class value-added high-quality services and technologies / solutions to our esteemed customers in a safe, secure, healthy environment and at an affordable competitive rate.

VISION

To be the Leading and one-stop Maintenance and Service Company, replicating world best practices in Africa in line with the Industry Standards.

OFFERING TO THE OIL & GAS INDUSTRY

FRACSERVE Africa LLC works with reputable international partners and is the sole OEM representative to:

- **NDT Global** - world leaders in inline inspection and integrity services
- **CERAKOTE** - world best coating (painting) company

We offer the following services to the Oil & Gas Industry:

- **Inline Inspection + Integrity Services:** intelligent pigging of oil and gas pipelines with a wide a range of ultra-high-tech, highly accurate and ultra-reliable technologies in partnership with NDT Global
- **Surface Preparation and Painting:** blasting of surfaces (oil and gas tools, platforms rigs...etc) and coating (painting) in partnership with CERAKOTE.

Executive Summary contd.

WHY USE FRACSERVE AFRICA – OUR UNIQUE VALUE PROPOSITION

- We are 100% indigenous Nigerian company employing and empowering Nigerians
- We have world-class international collaborations that helps us to bring international experiences locally.
- Inline Inspection (ILI) Flagship Diagnostics Technologies & Solutions that is highly accurate and ultra-reliable through our partner NDT Global who are the leading & the best in the world
- **Asset Management:** Our Dynamic Risk Asset Management and Analytical Tool is a must have for Oil & Gas Pipeline Proactive and Preventive Maintenance as it has the capabilities to monitor, diagnose and advise pipeline routine maintenance schedule thereby saving huge cost in repairs and prevent pipeline rupturing and oil spillage.
- Safety is at the center and the core foundation guiding our operations
- We are very cost effective and our rates are competitively affordable.
 - Inline Inspection + Integrity Services: intelligent pigging of oil and gas pipelines with a wide a range of ultra high-tech, highly accurate and ultra-reliable technologies in partnership with NDT Global
 - One-Stop Inspection and Repair Services: Surface Preparation (Sand Blasting/Painting/ Coating of surfaces with CERAKOTE), NDT Inspection Services and Pressure Testing

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Behind Genesis Bakery, Port-Harcourt, Rivers State
E-mail: info@fracserveafrica.com
Website: www.fracserveafrica.com
Tel. +234-906 333 3000

SCOPE OF SERVICES

REPAIR & RE-CERTIFICATION



- Drilling and Production tools
- Pipe Handling and Hoisting Equipment
- Rig equipment Certification
- Valves inspection and Repair

SPECIAL PROCESS



Abrasive Blasting, Spray Painting

SERVICES-WELLHEAD SYSTEMS



Testing Iron Services, Chicksan,
Tubular Services, BOP, Manifold Repairs



ILI TOOL



Fracserve Africa LLC is a reputable one-stop oil and gas service company with world-class Agencies – NDT Global for Inline Inspection (ILI) and CERAKOTE INC for coating. We are situated in our permanent facility measuring 6984.556sqm. Our workshop is purpose built with a 5t European Standard (EC) Girder Crane.



Fracserve Is A Full Third Party High Pressure Testing, Inspection and Repair Service Company

FRACSERVE PROVIDES RECERTIFICATION OF THE FOLLOWING EQUIPMENT:

Stimulation Flow line and Pumps

Wireline Equipment

Coil Tubing Equipment

Cementing Heads

Gate Valves

Production Testing Flow lines

High Pressure Pumping Hoses



Preventative and Routine Maintenance

Fracserve technicians / experts are available to make recommendations on general maintenance and daily repair of High-Pressure Equipment, Rotary Equipment Care and Maintenance, as well as all Downhole tools ultimately resulting in longer life and lower costs.

Comprehensive Inspection Services For OCTG, Chiksans and Temporary Pipework

LEVELS OF INSPECTION FLOWLINE

Level 1 Inspection - Visual Inspection, Ultrasonic Wall Thickness, Take Wings Off, Clean Wing End & Thread End, Magnetic Particle Inspection & Band.

Level 2 Inspection - Visual Inspection, Ultrasonic Wall Thickness, Take Wings Off, Sandblast, Magnetic Particle Inspection, Band, Pressure Test & Paint.

Level 3 Inspection - Visual Inspection, Ultrasonic Wall Thickness, Take Wings Off, Sandblast, Magnetic Particle Inspection, Disassemble, Reassemble, Band, Pressure Test & Paint.

FLOWLINES – COIL TUBING – WIRELINE – WELLHEAD – BOP'S VISUAL INSPECTION

Visual Inspection shall be carried out by well trained and experienced inspector with the help of visual aid on flow bores and exterior surfaces for irregularities including erosion, cracking and damage before any other inspection commences. Once the piece has been disassembled, a visual inspection is also carried out on all the sealing surfaces and disassembled parts. All technicians performing visual inspections shall be certified to meet or exceed the requirements of ASNT recommended practice SNT-TC-1A, 2011 Edition.

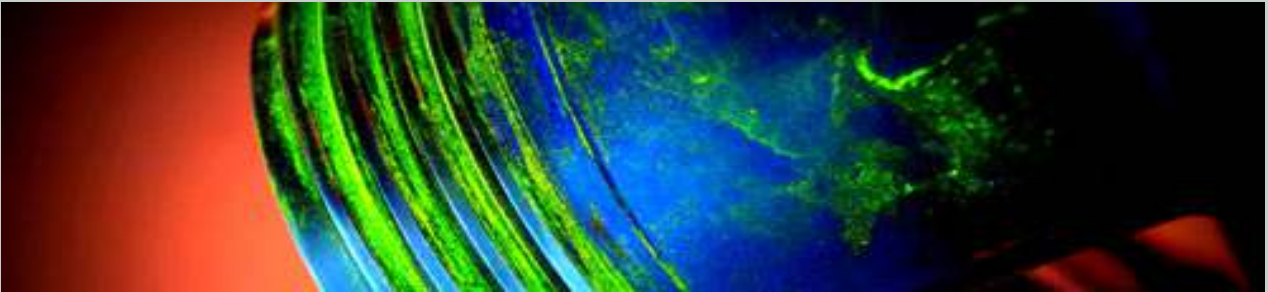


THREAD GAUGES

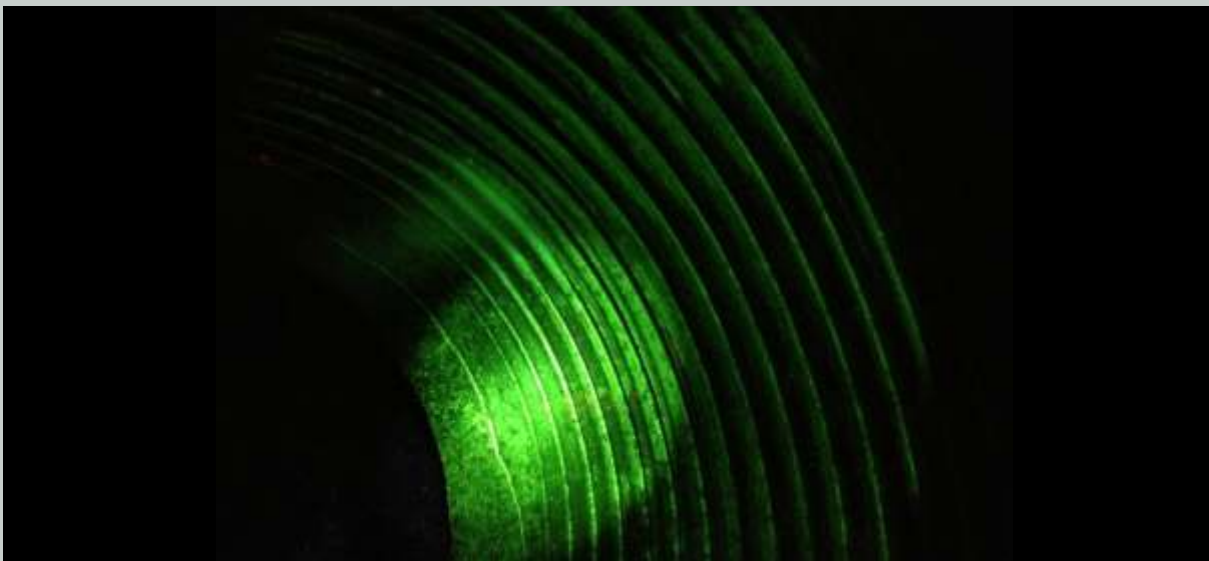
Fracserve uses GO/NO-GO gauges to detect unacceptable wear of hammer union sub ends, wing halves. Fracserve uses Iron-Pro's universal gauges that are manufactured and calibrated using standards whose accuracies are traceable to the NIST, with a calibration system that meets ISO 10012-1, ISO 17025 and MIL 120 requirements. We currently provide gauging for 2" 1502, 3"

1502, 4" 1002 and 4" 1502 union configurations.

MAGNETIC PARTICLE INSPECTION



Magnetic Particle Inspection – Magnetic particle inspection shall be performed only by a certified level 2 ASNT-TC-1A technician, who has been trained and certified to meet or exceed ASTM E-1444 and ASME E-709 Section V requirements for non-destructive examinations. Technicians are trained and tested on flow line iron by a certified level 3 inspector, not aircraft parts in a classroom. While there are many methods of MPI, Fracserve uses the wet fluorescent method in our darkroom unless the customer requirements dictate otherwise. MPI results are stored in the Fracserve database system.



ULTRASONIC INSPECTION SERVICES

Ultrasonic Inspection - Ultrasonic inspection shall be performed only by technicians who have been trained and certified to meet or exceed ASME and ASNT requirements for non-destructive examination. Ultrasonic testing and measurements shall be carried out using the best UT Flaw Detector.

Manufacturer Minimum wall specs are used for pass/fail criteria. UT results are stored electronically in our Fracware database.



PRESSURE TESTING SERVICES

Pressure Testing – Fracserve provides pressure testing capabilities from 0 PSI to 30,000 PSI. For safety reasons, all pressure testing shall be done in one of several enclosed pressure test booths, carried out by trained and certified technician.

Pressure test bays are built to the strictest codes as stipulated by industry standards and certifying agencies.

In Fracserve only valid and calibrated test equipment and test accessories shall be used for pressure testing.





Our technicians receive some of the best training in the industry

All lead technicians have received ASNT certified training emphasizing high pressure testing consistent with API, ASNT and ASME requirements. All technicians go through a series of unique annual training courses designed to promote our core values of Safety and Quality. Our investment in the education and technical proficiency of our technicians is just a part of our commitment to providing you the best value possible.

HARDNESS TESTING

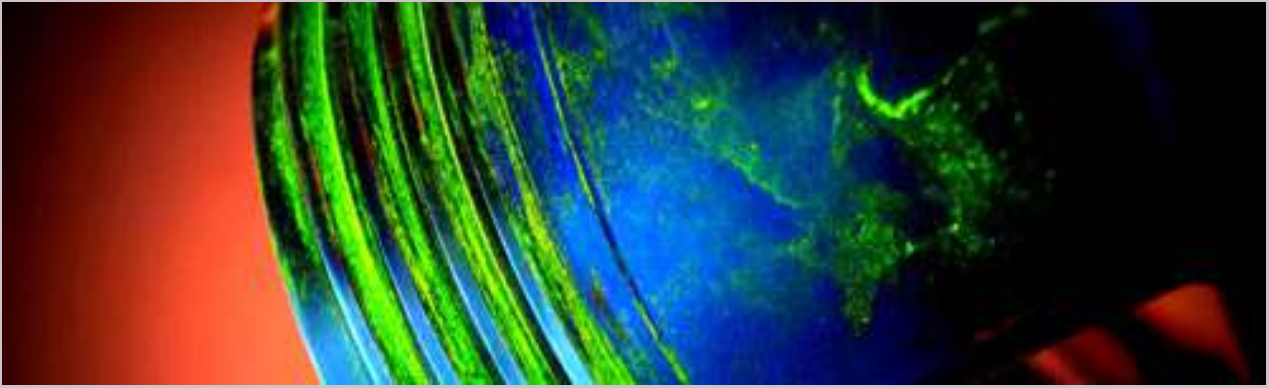


Fracserve can provide NACE compliance for equipment with exposure to Sour Service environment. Hardness testing is also used when nitrogen pumpers “White Line” their equipment and flowline.

IDENTIFICATION AND BANDING

All equipment will be identified with stainless steel bands with Serial Number, Manufacturer, Pressure Rating and inspected date. Also unit and location date can be applied on the band. Fracserve also body stamp's the serial number and manufacturer into the body of the component (if not done by the manufacturer already) in case of losing the Asset Band.



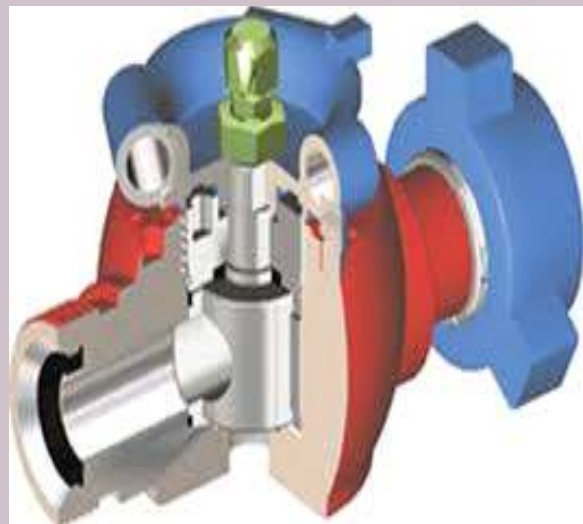


Complete Repair

We source parts from OEMs to service equipment for complete repair of your High Pressure Equipment.

Fracserve repairs the following equipment;

- Coil Tubing – Wireline -Drilling Blowout Preventors
- High Pressure Swivels -Hoseloops
- Plug Valves - Ball Valves - Gate Valves - Relief Valves – Check Valves
- Manifolds
- Coil Tubing Strippers
- Flange Ring Grooves
- Chokes
- Wireline Tool Catchers



ASSET MANAGEMENT

Documentation

Fracserve shall provide detailed documentation of results for all products inspected, tested, and repaired. Reports shall be made available when the service is completed.

Asset Management

Tracking and maintaining the volume of Critical Pressure Equipment used in high-pressure services is a major undertaking. Asset management is a cooperative program where specially trained Fracserve personnel inventory, track, and maintain a customer's High Pressure assets at their facility or in a designated Fracserve facility. Asset management is helping customers significantly increase equipment utilization rates and service life while reducing total costs and safety concerns.

Fracserve is also working on RFID technology that interacts with our database. Real time tracking of your assets is possible.





Surface Preparation and Coating using various types of abrasive materials such as, Grits, Water Blasting. We deploy cutting edge blasting machines to achieve a smooth surface finish. We have a paint booth installed in our workshop and use airless spray machine. CERAKOTE INC USA - "The unrivaled leader in Thin Film Coating" materials are used or as specified by the customer. Our Sand / Hydro blasting and Wash Bay are purpose designed and with two oil water separators to contain any oil waste because we are concerned about the environment.

FRAC PUMP REPAIR/INSPECTION

Fracserve provides a wide range of repair and inspections for pressure pumps

- Fluid End repairs and replacements
- Replace valves and seats
- 92 Point Inspection
- Performed at six month intervals
- Every make and model
- Documented cost savings
- Rapid response
- 24 hour service





INLINE INSPECTION (ILI) DIAGNOSTICS MEASUREMENTS AND INTEGRITY SERVICES

FRACSERVE Africa LLC is the sole OEM Representative to NDT Global in Nigeria and with the leverage to cover West Africa and beyond.

NDT Global is the leading provider of ultra-high-tech diagnostic inspection solutions, advanced data analysis and integrity assessment services for ensuring the safety and longevity of energy sector infrastructure assets.

NDT Global is recognized as the forerunner in the High-Speed Ultrasonic Inspection Technologies.

NDT Global delivers the most highly accurate and ultra-reliable diagnostic inline inspection data to drive long-term risk assessment and prevention.

www.ndt-global.com



ART Scan™

UT Metal Loss Measurements for Gas Pipelines



Acoustic Resonance Technology (ART)

ART is an ultra-wideband acoustic measurement technology that delivers highly accurate pipeline wall thickness data. Like other ultrasonic technologies, the direct nature of the measurement provides a significant improvement over magnetic inline inspection (ILI) technologies, when compared in terms of defect detection, classification, and sizing. This applies to internal, external and mid-wall defects and equally for metal loss as well as deformation, which is collected in the same run. With this data, pipeline operators have all the information they need to take precise corrective action to maintain their asset integrity.

The ART Scan tool provides an ultrasonic ILI of pipelines using gas or liquid as a coupling medium. Although initially optimized for use in gas pipelines, the ART technology operates in liquid lines with the same measurement specifications.

Using acoustic resonance technology, the ART Scan tool provides sub-millimeter accuracy wall thickness measurements in both gas and liquid pipelines. Beyond wall thickness the non-contact sensors also provide a full ultrasonic geometry survey of dents, buckles, out-of-straightness and ovality.

ART Scan is a short, light-weight inspection tool, with the capacity to inspect even the longest pipelines in a single run. The tool is available in dual-module design for multi-diameter capability and in single module set up for bi-directional operations. ART Scan tool is unquestionably the go-to platform for challenging pipelines.

Key Benefits of ART Inline Inspection






Direct wall thickness measurement in gas lines, with sub-millimeter accuracy

Inspection of heavy-wall gas pipelines up to 75 mm (2.95 in) at full production without compromising measurement specifications

Single inspection run to collect metal loss, ID/OD, geometry and inertial measurement unit (IMU) data

Multi-diameter and bi-directional options available in all sizes

Accurately inspects through paraffin (wax) and rough surfaces in liquid lines

-  Axial Cracks
-  Circumferential Cracks
-  Metal Loss
-  Geometry Ovalities
-  Mapping

UT Metal Loss Measurements for Gas Pipelines



Specifications

Key Tool Specifications: ART Scan

Tool sizes	10" to 48"	10" to 48"
Pipeline medium	Gas/Liquid	Gas/Liquid
Bidirectional configurations	16" to 48"	16" to 48"
Single body options	16" to 48"	16" to 48"
Existing multi-diameter set-ups	16"x24", 20"x24", 24"x30", 30"x36", 28"x42"	
Maximum diameter change	Up to 50%	Up to 50%
Max. operation speed	5 m/s	11 mph
Temperature range	-10 to +60 °C	14 to 140 °F
Max. pressure	250 bar	3600 psi

Special configurations for high pressure are available. An extensive range of multi-diameter tools is available upon request.

Defect Location Accuracy

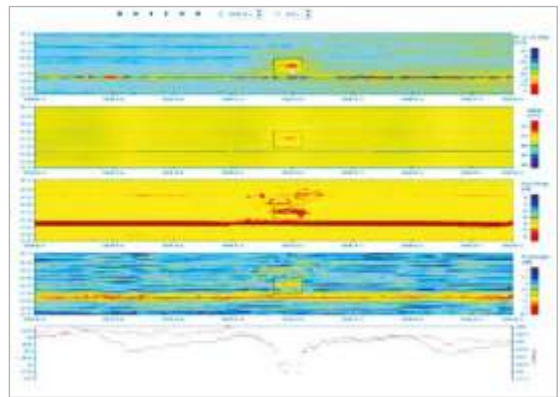
Axial from nearest girth weld	±0.1 m	±3.94 in
Circumferential	±3°	±3°

Key Performance Specifications (referring to API 1163)

POD for corrosion and metal loss features ≥ 90%		
Min. depth	0.8 mm	0.03 in
Depth sizing accuracy	±0.4 mm	±0.02 in
Wall thickness determination	±0.4 mm	±0.02 in
Location in pipe wall		
Internal/external/mid-wall	Yes	Yes



ART Scan tool navigating 30" non-return valve



ART Scan inspection data screenshot



ART Scan tool navigating wye connection

Please note: Tool and performance specifications depend on inspection and pipeline conditions. Please contact your local NDT Global representative for further information. NDT Global reserves the right to introduce modifications and changes without prior notice. ART Scan™ is a trademark of Halfwave.



EVO Mapping

Pipeline Mapping High-Accuracy GPS Information








The Problem

Integration of pipeline data is a major concern for pipeline operators. Regulations require pipeline operators to document the specific location of their assets, however, the legacy documentation may not always be available. Timely inspection of pipelines can save valuable effort and resources at a later stage.

The Solution

By leveraging high-end exploration technology and leading-edge software products, NDT Global's EVO Mapping can pinpoint installations, welds and anomalies in gas and liquid pipelines even at the preliminary reporting stage. Inertial measurement units carried on these tools deliver precise information that enables NDT Global's experts to identify the precise location of a flaw. The captured data can be exported to a geographic information system (GIS), helping operators better understand and visualize their pipeline and any anomalies identified. NDT Global delivers a range of specialist software products for the management and analysis of inspection data and other key metrics relating to pipeline management.

-  Axial Cracks
-  Circumferential Cracks
-  Metal Loss
-  Geometry Ovalities
-  Mapping

EVO Mapping

EVO Mapping inspection can offer an accurate and extended picture of the current status of your assets and provide a sound basis for decision making. High-accuracy GPS information provides a reliable reference to relate pipeline data and at the same time, reduces verification costs.

EVO Mapping can deliver 3D coordinates with sub-meter accuracy. This service can also provide bend quantification accurately deflection angle, direction and bend radius. The GPS information can be integrated and transferred to subsequent runs with other inspection technology.

Benefits

- 3D sub-meter accuracy positions
- Direct GIS input & flexible output formats, including ESRI® SHP files, spreadsheets and Google Earth compatible files
- Essential components of any baseline assessment and integrity management plan
- Pipeline bending quantification
- Available from 6" to 48"

Pipeline Mapping High-Accuracy GPS Information



Specifications

Key Tool Specifications: EVO Mapping

Tool sizes	6" to 48"	6" to 48"
Pipeline medium	Liquid	Liquid
Max. operation speed	4 m/s	9 mph
Temperature range	-10 to +50 °C	14 to 122 °F
Max. pressure	120 bar	1740 psi
Min. bend radius	1.5 D 90°	1.5 D 90°
Strain reporting threshold	≥ 0.1%	≥ 0.1%

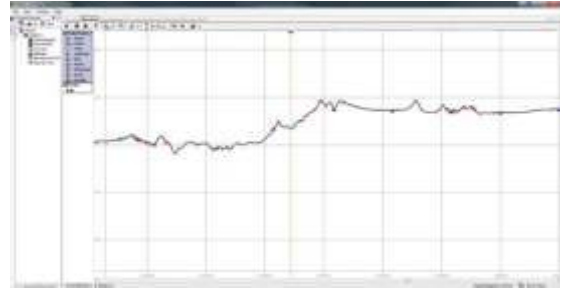
Deliverables Specifications

Datum	WGS84 ¹
System	Geographic and/or map projection
Projection	UTM WGS84 ¹
Resolution/sampling	0.025 m (1.0 in) normalized
Coordinates	Appended to the pipeline register for all ILI events
Deliverable format on request	ESRI® Shape, CSV, Microsoft® Excel, KMZ

¹ Global/international definitions upon request

Position Accuracy

Horizontal accuracy (1 σ)	± 0.5 m (1.6 ft)
Vertical accuracy (1 σ)	± 0.5 m (1.6 ft)
Relative accuracy (1 σ)	1:2000



An accurate elevation data is an integral element to the development of an integrity program. It also helps to create an accurate pressure profile for future assessments.



The provided GPS data, along with the pipeline register, also provides a detailed feature description and identification that can be easily loaded into any GIS software.



It is important to highlight the fact that the INS data can align and compare with several GIS data sources; terrain, elevation and HCA models, etc. The data can also be easily loaded in mapping services like Google Earth and OpenStreetMap.

Please note: Tool and performance specifications depend on inspection and pipeline conditions. Please contact your local NDT Global representative for further information. NDT Global reserves the right to introduce modifications and changes without prior notice.



OPTIX™

Data Visualization and Insights Platform



Actionable Insights at your Fingertips

Pipeline operators have been seeking a tool that allows them to dynamically visualize the final results of an inline inspection (ILI). They also have wanted to easily consume all of NDT Global's ILI data in an intuitive platform, at their own schedule, to make informed decisions about their pipelines integrity.

NDT Global has realized the solution to these needs with the new OPTIX Data Visualization and Insights Platform.

Before OPTIX, pipeline operators received only fixed charts and static data sets in their ILI reports. Any further calculations had to be performed manually, rendering the data inaccessible without time-consuming efforts. Clunky PDF's and PowerPoint presentations limited operators ability to store and retrieve data. Operators wanted more.

With OPTIX, all information is streamed and available through a cloud-based interactive dashboard that can be accessed in real time and filtered to fine-tune the data sought. The data can be easily exported to CSV files for additional manipulation and custom advanced analytics. A search-and-interrogate database portal leads to interactive queries that extract far more information than was previously available in an

interactive, easy-to-use format that displays the data in multiple layouts, depending on need.

The data can be explored from multiple angles, providing insights to specific inquiries, in-the-moment issues and offering the clarity required to make informed decisions.

Benefits

All your inline inspection information in one place; easily accessible, immediate and interactive






Enables real-time interaction with NDT Global

Maintain a running historical record of pipeline inspections

Organize your data in an interactive, easy-to-consume dashboard

Intuitive, no need for training or complicated manuals

Continually evolving platform with automatic updates via the cloud

-  Axial Cracks
-  Circumferential Cracks
-  Metal Loss
-  Geometry Ovalities
-  Mapping

Data Visualization and Insights Platform



Tablet and mobile view

Access your reports using any desktop or mobile device (all web browsers supported).
Also available via mobile Apps

Does not require clunky VPN's, dongles, licensing or complicated IT support. Access directly with your company email account

Immediate access to any final report, including inspection information, feature density, pipe tally, elevation profile, maps, and more

Interactive and custom landing page

Quickly glance and filter all critical features by depth and distance including an overview of repairs

Basic	Essentials	Pro
1 user	5 users	Unlimited users
1 report	Access to 5 year report history	Customization
1 year	Quarterly new releases	Early access to new features via insider program
Try for free!		

Additional Office 365 licensing may be required in individual cases

Please contact your local NDT Global representative for further information.
NDT Global reserves the right to introduce modifications and changes without prior notice.



www.ndt-global.com
Australia | Canada | Germany | Ireland | Mexico | Norway | Spain | UAE | UK | USA



EVO 1.0 UC

Ultrasonic Crack Inspection








Detecting and Sizing of Cracks and Crack-like Anomalies

Cracks and crack-like features can occur during pipe manufacture, pipeline construction or operation. Whatever their origin, these flaws can seriously compromise the integrity of a pipeline, making it essential to detect and size them before they cause irreparable damage.

Ultrasonic crack inspection enables early detection and sizing of cracks and crack-like anomalies. This allows the pipeline operator to take appropriate measures to avoid pipeline failures caused by cracks. The principle of the ultrasonic crack inspection tool is based on the 45° angle beam technique using shear waves. Due to the so-called corner reflection, even minor cracks from approximately 1 mm (0.04 in) onwards give quite strong reflections. The pulse-echo technique is applied, i.e. the same probe serves both as transmitter and receiver, before the signals are processed further.

For inline inspection (ILI), the coupling of the ultrasonic pulses into the pipe wall is achieved through the pipeline medium (usually crude oil/ refined products). Due to the different sound velocities in the coupling medium and in steel, a specific angle of incidence is required in order to obtain a 45° refraction angle in the pipe wall.

-  Axial Cracks
-  Circumferential Cracks
-  Metal Loss
-  Geometry Ovalities
-  Mapping

EVO 1.0 UC

Precise inspection of axial cracks

Absolute crack sizing for full range of crack depth

Available for a bend radius starting from 1.5 D

Designed specifically for high-precision inspection of axial cracks in the pipe body and long seam welds, including stress corrosion cracking

Available for diameters from 6" to 48"

EVO 1.0	Your benefits
Up to four times faster inspection speed	No reduction of flow rate
Up to four times higher axial resolution	High performance crack profiling inspection
Shorter tool lengths	Enhanced tool operation
Maximized ILI tool	Customization to your needs

Ultrasonic Crack Inspection



Specifications

Key Tool Specifications: EVO 1.0 UC

Tool sizes	6" to 48"	6" to 48"
Pipeline medium	Liquid	Liquid
Max. operation speed	4 m/s	9 mph
Temperature range	-10 to +50 °C	14 to 122 °F
Max. pressure	120 bar	1740 psi
Min. bend radius	1.5 D 90°	1.5 D 90°
Min. axial sampling distance	0.75 mm	0.03 in
Circumferential sensor spacing	UC 10 mm	UC 0.39 in

Max. operating speed and min. axial sampling distance depend on specific ILI tool set-up. Special configurations for high-temperature, high-pressure, multi-diameter and bi-directional inspections available upon request.

Defect Location Accuracy

Axial from nearest girth weld	±0.1 m	±3.94 in
Circumferential		
for $\varnothing < 20"$	±10°	±10°
for $\varnothing \geq 20"$	±5°	±5°

Key Performance Specifications (referring to API 1163)

POD for axial cracks, crack-like anomalies and linear indications $\geq 90\%$

Min. depth of crack with $L \geq 20$ mm (0.79 in)

Base material & at weld	1 mm	0.04 in
In weld	2 mm	0.08 in
Depth sizing accuracy at 80% certainty in ERW and base material		
1 < 4 mm (0.04 ... < 0.16 in)	±1 mm	±0.04 in
≥ 4 mm (0.16 in)	not specified	not specified
Length sizing accuracy at 90% certainty	±10 mm	±0.39 in
Location in pipe wall		
Internal/external	Yes	Yes

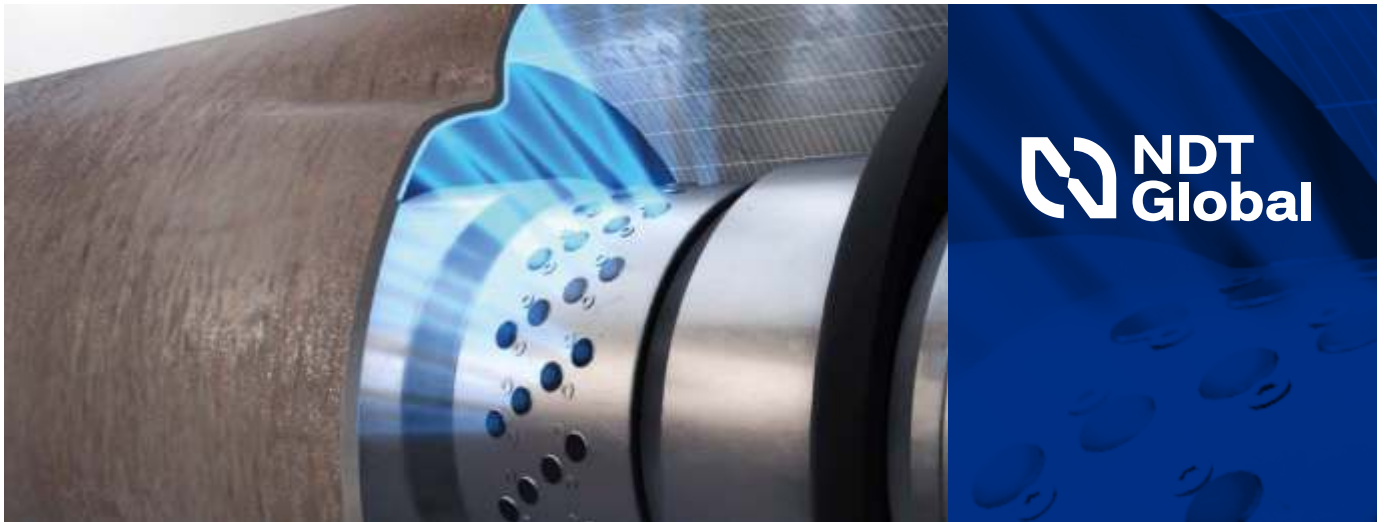


Inline inspection tool EVO 1.0 UC



Axially oriented crack colony

Please note: Tool and performance specifications depend on inspection and pipeline conditions. Please contact your local NDT Global representative for further information. NDT Global reserves the right to introduce modifications and changes without prior notice.



EVO Geometry

Ultrasonic Geometry Inspection



Ultrasonic Geometry Inspection

The leading edge EVO Series 1.0 delivers the most accurate and reliable ultrasonic inline inspection (ILI) available today. Combining a metal loss or crack assessment with ultrasonic-based geometry measurement enables a comprehensive inspection in a single run.

Accurate pipe geometry measurement and detection of dents is essential for pipeline integrity management. Using ultrasonic technology ensures precise, direct measurement of dents with depth resolution down to 0.1 mm (0.004 in). An ultrasonic geometry (UG) sensor module is combined with an EVO Series tool, delivering a complete metal loss/crack and geometry measurement solution, which enables the assessment of cracks in dents.

Multiple datasets are gathered in a single inspection and enhance identification of combined defects as the data is fully aligned. Data analysis now utilizes this amalgamated data with improved identification of metal loss to associated with dents or to detect cracks in dents associated with fatigue.






Precise Measurement with Improved Efficiency

As a market leader, NDT Global leverages its expertise in ultrasonic pipeline inspections to set new benchmarks for geometry inspection.

New API RP 1183 suggest smoothing techniques in geometry data to approximate the dent shape, however, it is highly recommended to use the most accurate data available for the dent characterization.

We are capable of reporting dent characterization and calculating the dent fatigue life in compliance to API PR 1183.

The use of high-resolution ultrasonic geometry ensures complete coverage of the pipe wall. This coverage is maintained in bends with no loss of data. The absence of any mechanical calipers ensures that there is no risk of damage to the tool and allows the flexibility to perform bi-directional inspections.

-  Axial Cracks
-  Circumferential Cracks
-  Metal Loss
-  Geometry Ovalities
-  Mapping

EVO Geometry	Your Benefits
Combined geometry and metal loss/crack inspection	Multiple datasets obtained from a single inspection run which lowers costs
Fully aligned inspection data	Enhanced identification and classification of interacting defects, especially associated with dents
Highest performance specification	Enhanced assessment and less unnecessary digs

Ultrasonic Geometry Inspection



Specifications

Key Tool Specifications: EVO Geometry

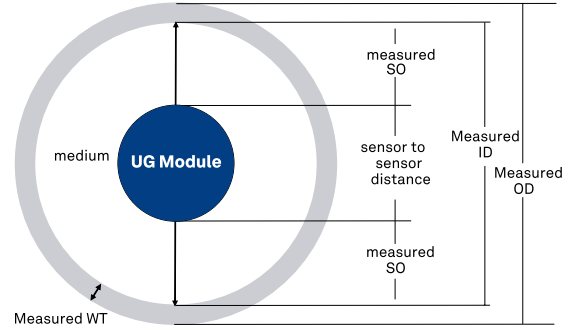
Tool sizes	6" to 38"	6" to 38"
Pipeline medium	Liquid	Liquid
Max. operation speed	4 m/s	9 mph
Temperature range	-10 to +50 °C	14 to 122 °F
Max. pressure	120 bar	1740 psi
Min. bend radius	1.5 D 90°	1.5 D 90°
Min. axial sampling distance	0.75 mm	0.03 in
Typical UG circumferential sensor spacing	15 mm	0.59 in
Defect location accuracy		
Axial from nearest girth weld	±0.1 m	±3.94 in
Circumferential		
for $\varnothing < 20"$	±10°	±10°
for $\varnothing \geq 20"$	±5°	±5°

Max. operating speed and min. axial sampling distance depend on specific ILI tool set-up. Special configurations for high-temperature, high-pressure, multi-diameter and bi-directional inspections available upon request.

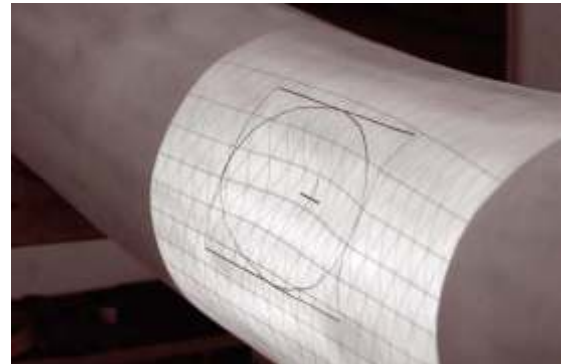
Key Performance Specifications (referring to API 1163)

POD for dents and ovalities $\geq 90\%$		
Min. dent depth	2 mm	0.08 in
Min. ovality	2 mm	0.08 in
Dent depth sizing accuracy	±1 mm	±0.04 in
Dent length sizing accuracy	±10 mm	±0.39 in

Depth in percent can be calculated dividing the depth (mm/in) by OD (mm/in), absolute value is provided as direct measurement UT method.



Ultrasonic Geometry; direct measurement principle allows to scan the inner diameter of the pipeline without sensor calibration



Sample dent observed in a pipeline

Detection, Identification and Sizing Capabilities of EVO Geometry

- Dent
- Ovality
- Wrinkle/Ripple
- Buckle
- Bulges
- Blisters
- Pipeline expansion
- Out of roundness
- Type B sleeves
- Patches
- Welded fixtures

Please note: Tool and performance specifications depend on inspection and pipeline conditions. Please contact your local NDT Global representative for further information. NDT Global reserves the right to introduce modifications and changes without prior notice.



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EVO 1.0 UMp

Ultrasonic Metal Loss Inspection








Detecting and Sizing Metal Loss

Pipeline integrity plays a critical role in the overall success of your business. Anomalies such as corrosion and gouging can cause metal loss, significantly reducing pipe wall thickness. Measuring these key parameters and determining the safe operating pressure is paramount for pipeline integrity.

EVO 1.0 offered by NDT Global significantly improves tool performance by enhancing speed, resolution and reliability. Representing state-of-the-art electronics and incorporating high-resolution sensor carriers, this innovative technology marks a milestone in the inline inspection (ILI) evolution. By increasing the performance of inspection equipment, tools have the capability to travel faster, or the axial resolution can be higher.

For each project, we identify your unique requirements and tailor our service accordingly to ensure high standards of reliability, expertise and responsiveness.

Our global engineering team has the required skills and experience to efficiently manage complex and challenging tasks, including dual and multi-diameter, deepwater and bi-directional inspections.

-  Axial Cracks
-  Circumferential Cracks
-  **Metal Loss**
-  Geometry Ovalities
-  Mapping

EVO 1.0 UMp

Metal loss inspection, quantitative wall thickness measurement with pitting resolution/pinhole

Provides the best resolution for pitting detection and sizing

No loss of throughput/reduction due to ILI

UMp service reliably detects defects and sizes as small as 5 mm (0.2 in)

Available for diameters from 6" to 48"

EVO 1.0	Your benefits
Up to four times faster inspection speed	No reduction of flow rate
Up to four times higher axial resolution	High performance metal loss profiling and pitting inspection
Shorter tool lengths	Enhanced tool operation
Maximized ILI tool flexibility	Customization to your needs

Ultrasonic Metal Loss Inspection



Specifications

Key Tool Specifications: EVO 1.0 UMp⁺

Tool sizes	6" to 48"	6" to 48"
Pipeline medium	Liquid	Liquid
Max. operation speed	2 m/s	4 mph
Temperature range	-10 to +50 °C	14 to 122 °F
Max. pressure	120 bar	1740 psi
Min. bend radius	1.5 D 90°	1.5 D 90°
Min. axial sampling distance	0.75 mm	0.03 in
Circumferential sensor spacing	4 mm	0.16 in

Max. operating speed and min. axial sampling distance depend on specific ILL tool set-up. Special configurations for high-temperature, high-pressure, multi-diameter and bi-directional inspections available upon request.

Defect Location Accuracy

Axial from nearest girth weld	±0.1 m	±3.94 in
Circumferential		
for $\varnothing < 20"$	±10°	±10°
for $\varnothing \geq 20"$	±5°	±5°

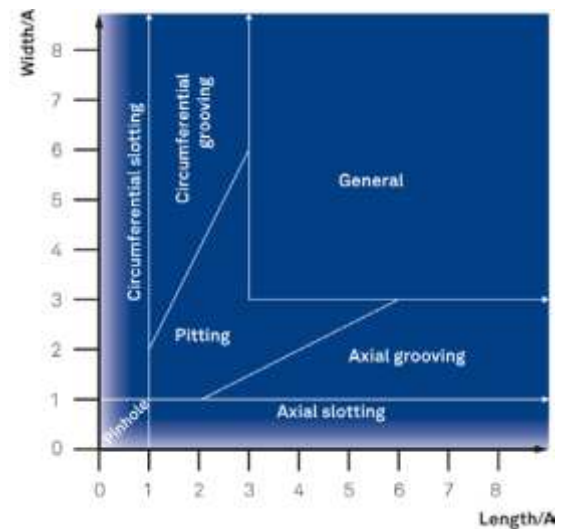
Key Performance Specifications (referring to API 1163)

POD for corrosion and metal loss features $\geq 90\%$		
Min. diameter	5.0 mm	0.20 in
Min. depth	0.8 mm	0.03 in
Depth sizing accuracy	±0.4 mm	±0.02 in
Wall thickness determination	±0.4 mm	±0.02 in
Mid-wall features, laminations and inclusions		
Min. diameter	10.0 mm	0.39 in
Location in pipe wall		
Internal/external/mid-wall	Yes	Yes



Inline inspection tool EVO 1.0 UMp

Metal loss feature classification chart (according to POF 2016)



A = wall thickness or 10 mm (0.39 in), whichever value is greater.

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The Power of Clarity.

NDT Global is uniquely positioned to enable business efficiency, growth and profitability. By pushing the boundaries of technology and innovation in collaboration with our customers, we deliver the best, most accurate and most reliable diagnostic data, in order to drive actionable insights that power predictive analysis, long-term risk assessment and optimal asset health. Decision-ready data at your fingertips, for total confidence and ultimate peace of mind. So when it comes to partnering for safety and sustainability, the choice is clear.



RECENT WORK

- Very long runs
- Deep water runs
- High pressure
- Subsea launch
- Subsea receive
- Worked of all major operators with ART Scan





Fracserve is committed to providing all your inspection and maintenance needs, whatever, wherever they are needed at a price that is extremely competitive under one roof.



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