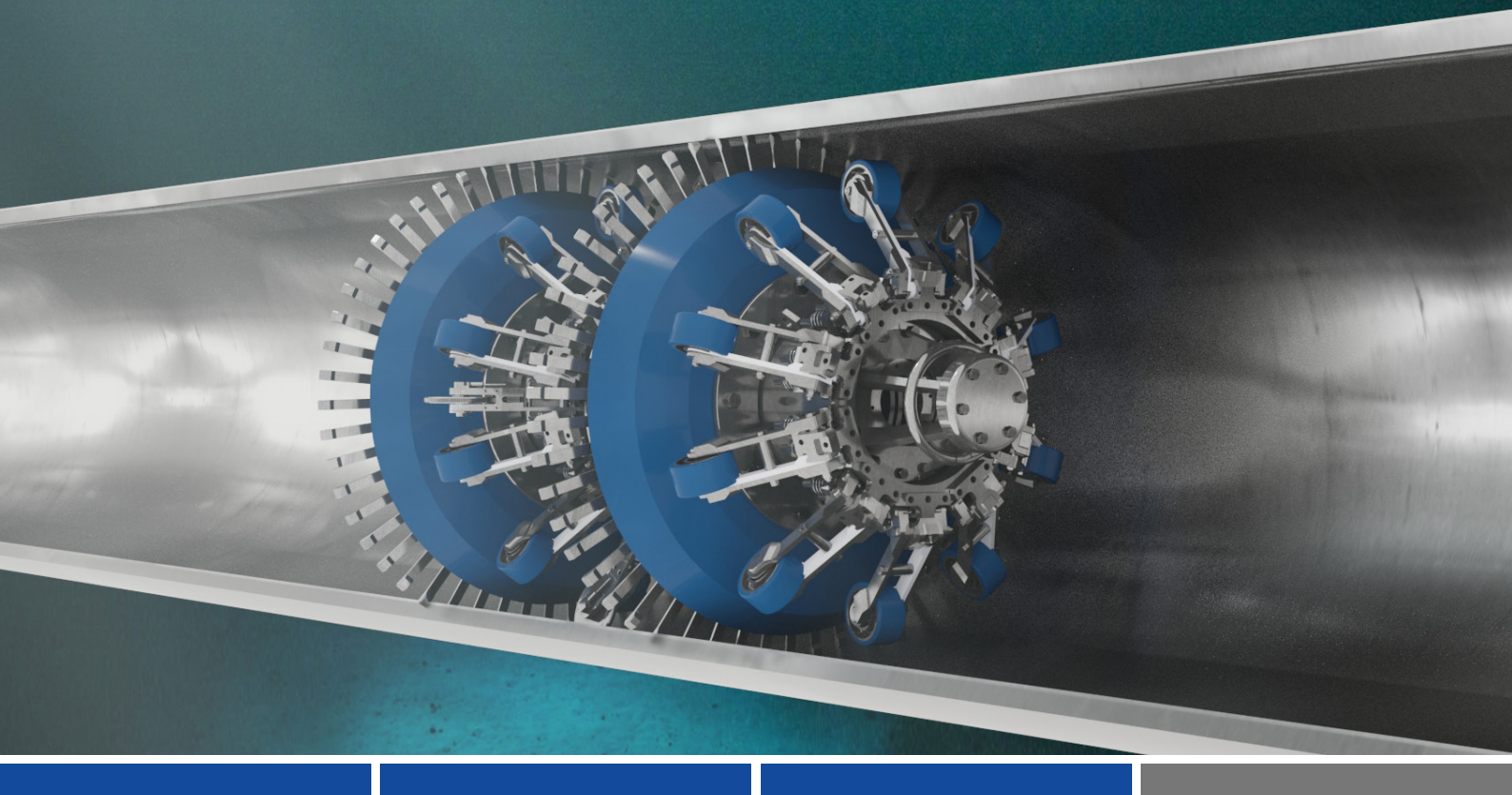


SMART AI CALIPER®

AUTOMATE YOUR PIPELINE GEOMETRY INSPECTION



IMPROVED DETECTION, IDENTIFICATION AND SIZING ALGORITHMS

The world's first AI-powered caliper tool

Run the SMART AI CALIPER with the LIN SCAN experts or your own personnel

More than ever, technology is improving the day-to-day operations of pipeline owners and operators, making it easy to perform the most challenging pipeline inspections. LIN SCAN introduces the world's first automated caliper tool, creating history in the world of in-line inspection.

Our R&D scientists developed the SMART AI Caliper inspection technology, exclusively based on the idea of an autonomous, self-learning ILI tool using artificial intelligence.

The SMART AI Caliper tool is **available for pipeline sizes ranging from 3" to 56"**. It is primarily intended for determining the parameters of a pipe profile, such as inner diameter, ovality, wrinkles, bends, and dents.

Migrating and integrating data can be challenging, so we developed our software to independently obtain current pipeline information, select high-definition data, and reduce calculation times.

The software performs an automatic search for girth welds, bends, geometry anomalies (dents, wrinkles, and ovality), and zones of stress/strain. Using this software, you can perform automated searches for features and anomalies, which means artificial intelligence will directly work with the Caliper signals.

The SMART AI Caliper produces inspection reports by itself to eliminate waiting times and the possibility of human error.



INSPECTION EXPERIENCE LIKE NEVER BEFORE

HIGH EFFICIENCY AND PERFORMANCE

One of the SMART AI Caliper functions is to search for girth welds; their position will be used to compose a pipe book. Our tools are compatible with the highest resolution IMUs in the market, allowing precise bend and stress-strain analysis.

With our technology's continuous development, we have equipped our caliper tools with additional options to fit your requirements, for example, special sensors to detect illegal tapping.

The tool is configurable for use in more than one single diameter pipeline. It has a full-bore reduction threshold of 0.7 OD with minimum bend passage capability of 1.5D, 90 degrees.

The IMU feature includes a state-of-the-art vibration-damping suspension. Additionally, we have improved our sizing accuracy to provide +/- 0.5% accuracy at 90% certainty.

GENERAL SPECIFICATIONS

Min bend radius, DN x bend angle degree	1.5x90
Full-bore reduction threshold, %OD *can be improved upon request	75%
Tool sizes	3" to 56"
Pumping product	Liquid, Gas, NGL, Multiphase
Flow rate range, m/s	0.3 – 5 m/s
Anomaly detection	Geometry anomalies: dents, wrinkles, ovality
Joint	Welded joint, Screwed joint, flush ID
Geometry anomalies width/length detection/reporting threshold (axial and circumferential resolution), mm	25 - 28 mm
Arm circumferential resolution	25.4 mm (1")
Arm axial resolution	5 mm @ speed 1 m/s
Operating temperature	-20°C to 80°C
Minimum Operating Pressure Gas Liquid Differential Pressure	15 Bar (250 psi) 5 Bar (75 psi) 0.7 bar (11 psi)
Maximum Operating Pressure (MOP)	200 bars
Number of Rows (rings) of arms	2

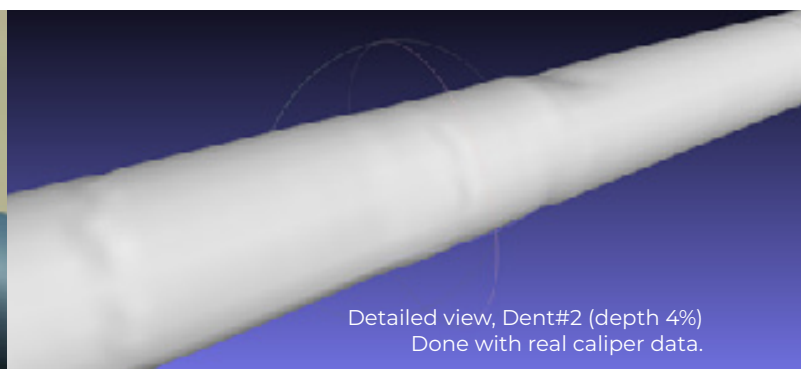
FEATURES

All of our SMART AI Caliper tools are compliant with ATEX requirements and accordingly certified. They provide the following key features:

- Final Report within 9 hours
- 100% coverage
- Data Quality Assessment
- Automated search for:
 - girth welds
 - geometry anomalies
 - bends
 - Stress-and-Strain zones
- 3D model creation
- Designed with front and rear sensors to achieve:
 - High-data resolution and precise local stress-strain calculations of geometry anomalies
 - Improved IMU navigation involving local spatial tool position
 - Improved pipeline pass ability estimation



Common view on 3D map, Dent#1 (depth 5%)
Done with "normal map" – Virtual 3D



Detailed view, Dent#2 (depth 4%)
Done with real caliper data.