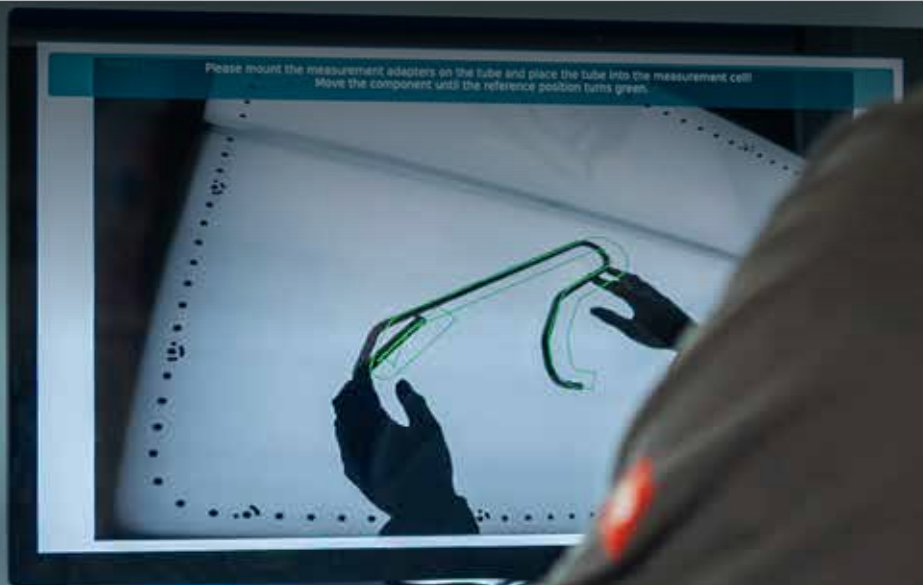




Tube and wire inspection solutions

Advanced measurement and process control
for the tube and wire production industry

From Hexagon's advanced understanding of manufacturing comes a range of tube and wire inspection solutions

Developed over 30 years of technical innovation to deliver practical productivity and quality gains for manufacturers across all industries.



Sectors

Tube and wire inspection for your industry

The places you can measure



- Aerospace
- Automotive
- eMobility
- Energy and Power Gen
- Heavy Machinery
- Agriculture
- Healthcare
- HVAC (heating, ventilation and air-conditioning tubes)
- Furniture
- Industrial Equipment
- General Manufacturing
- Education & Research
- Defence
- Marine
- Construction
- Motorsport

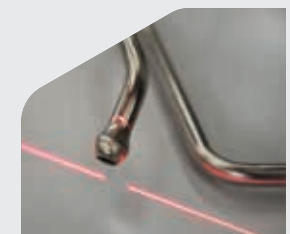
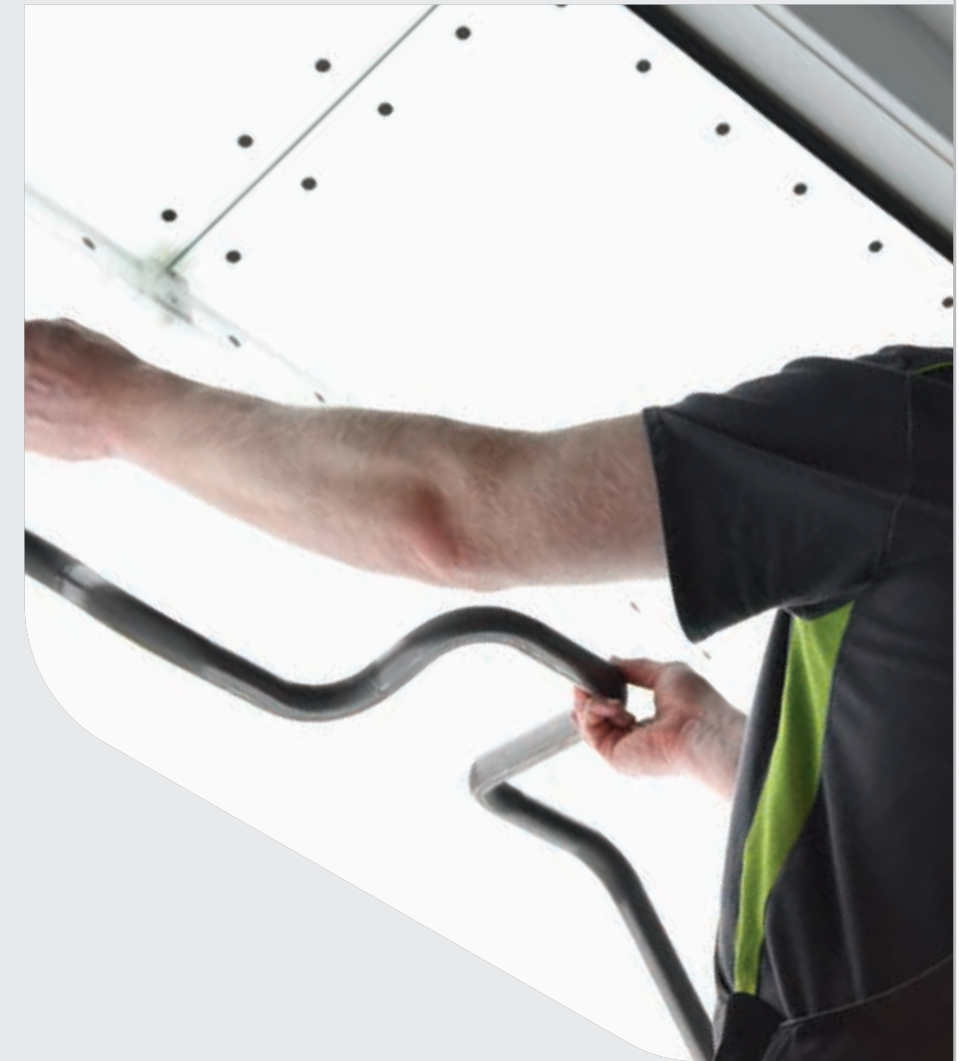


Applications

More uses than ever

The tasks you can complete

- Brake tubes
- Hairpins
- Large tubes
- Extra-long freeform tubes
- Busbars
- Stabilizers
- Thermoplastics
- Seating
- Railings
- Hydraulic pipes
- Rectangular frames
- Lightweight tubes
- Square tubes
- Wire
- Engine tubes
- Cooling tubes
- Exhaust tubes
- Brackets and fittings



Introduction

Transform your tube and wire manufacturing

Any shape, any size, anywhere

As a manufacturer, your success depends on delivering precise, high-quality products while overcoming challenges like inconsistent results, inefficient workflows, and outdated tools.

Hexagon's TubeInspect is designed with your needs in mind, offering precise, reliable measurement for any size or shape of tube or wire in even the harshest environments.

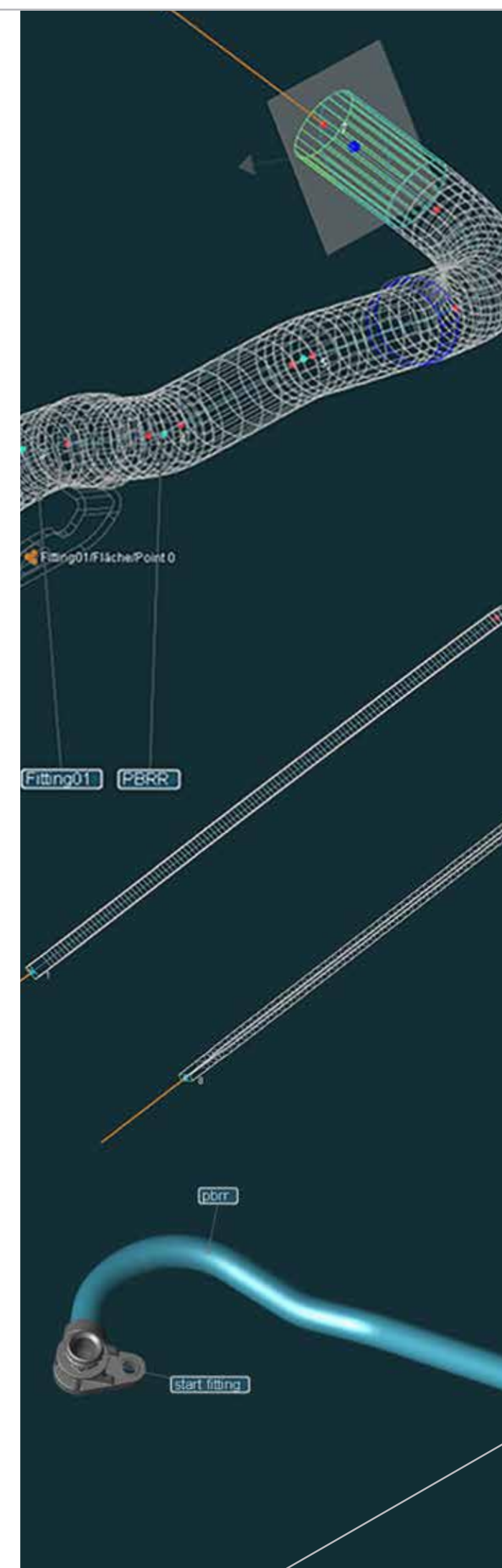
Integrated with BendingStudio XT, it streamlines your entire workflow, from design to production and quality control, delivering real-time insights, automated corrections, and unmatched efficiency.

With intuitive operation, minimised errors, and maximised productivity, Hexagon empowers you to meet tight schedules, reduce waste, and stay competitive.

Experience the reliability, speed, and simplicity that take your manufacturing to the next level.

Contents

One range for all tube & wire measurements	8
TubeInspect	10
TubeInspect is easy to use	12
TubeInspect is reliable	14
TubeInspect is fast	16
TubeInspect models	18
TubeInspect automation	19
BendingStudio XT	20
BendingStudio XT features	22
BendXtract technology	23
BendingStudio connectivity	24
BendingStudio XT packages	25
eMobility meets tube & wire measurement	26
Absolute Arm	28
Absolute Arm scanning	30
Absolute Arm probing	32
Handheld 3D scanners	34
Absolute Tracker	35
Choose your tube & wire system	36
Product specifications	38
Service and support	42



One range for all tube and wire measurements

See how our hardware and software combine to achieve your metrology goals

TubeInspect

Your non-contact optical measurement cell



Your advanced, automated measurement system for easy, reliable, fast and automated tube and wire inspections with a wide range of features.

It's ideal for measuring complex shapes and improving bending processes, delivering accurate results, quicker production, and less waste.

BendingStudio XT

Your central software hub



Your central software that links all Hexagon tube and wire measurement tools into one connected system.

It handles everything from real-time analysis to bender corrections, combining design, production, and quality control in a single solution.

Absolute Arm

Your reliable measuring device

Your robust and accurate solution for quick, on-site measurements with scanners and probes for manual measurements.

It provides high-accuracy data collection for flexible or hard-to-reach parts, making it ideal for diverse geometries and materials in a range of production environments.



Handheld 3D scanners

Your flexible scanning solution

Your ergonomic solution for standard tubes. From entry-level scanning of small tubes with ATLASCAN Pro to optical tracking of large-scale geometries with HYPERSCAN, the handheld 3D

scanners portfolio covers a wide range of applications. It offers the right balance of flexibility, coverage and accuracy for manual inspection.



Absolute Tracker

Your high-performance laser tracking system

Your laser tracker to complete precise inspections of large or complex components.

With powerful laser scanning and probing, it offers fast, reliable measurements for large tubes and pipes, covering distances of up to 30 metres.



Tube and wire measurement range

TubeInspect

Streamline your entire bending operation

TubeInspect is a non-contact optical measurement system designed for accurate, reliable and fast inspection of tubes and wires.

Built to handle the demands and harsh environments of modern production, it helps you streamline processes for faster throughput.

Easy to use:

Streamline workflows and reduce errors with intuitive features, automated processes, and operator-friendly design. Instant results displayed on the integrated screen.

Reliable:

Achieve consistent accuracy, even in harsh conditions, with advanced temperature compensation.

Fast:

Minimise setup time and maximise throughput: ultra-fast measurements with an image snap, seamless data transfer, and automated workflows.



Why TubeInspect?

Traditional tools like mechanical gauges and manual adjustments often cause inconsistent results, slow workflows, and lower productivity. TubeInspect solves these problems with advanced automation.



Tube and wire measurement range

TubeInspect is easy to use

Accelerate your processes

Achieve effortless precision and efficiency with TubeInspect's new, streamlining features designed to simplify workflows.

Every aspect of TubeInspect is built for use in production and to reduce operator dependency, minimise errors, and accelerate processes.

Effortless accuracy

Achieve consistent, error-free results without user influence, ensuring all parts are mountable - thanks to automatic drill hole measurement.

Seamless workflows

View real-time insights for faster, accurate operations - with the integrated TubeInspect screen.

Multi-part measurement

Operators can perform batch measurements by placing several parts inside the machine and measuring them in a single step. A clear visualisation shows which parts are within or outside tolerance, enabling faster and more reliable inspection.

Energy efficiency

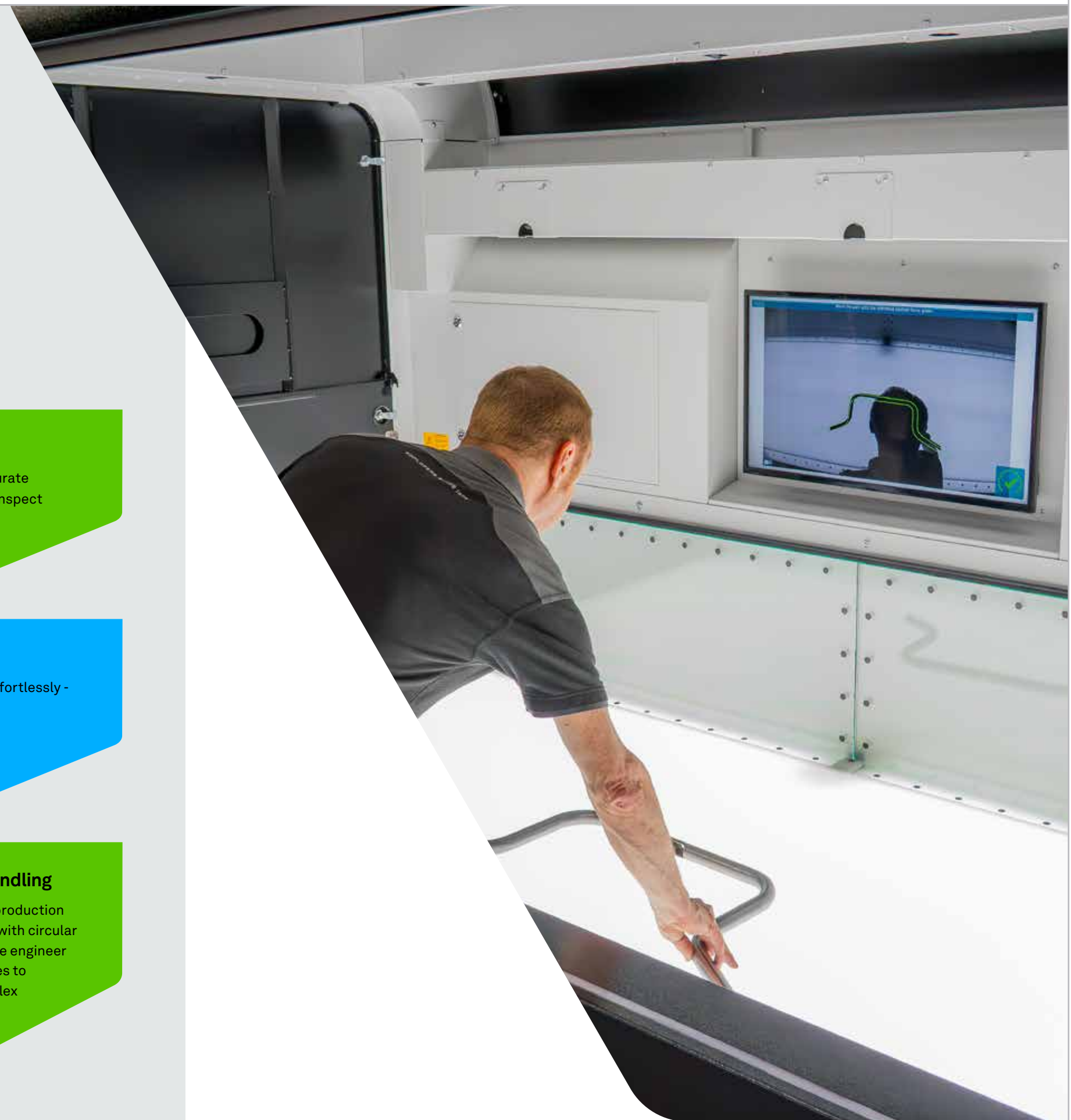
Save costs and extend machine life effortlessly - using energy-saving mode.

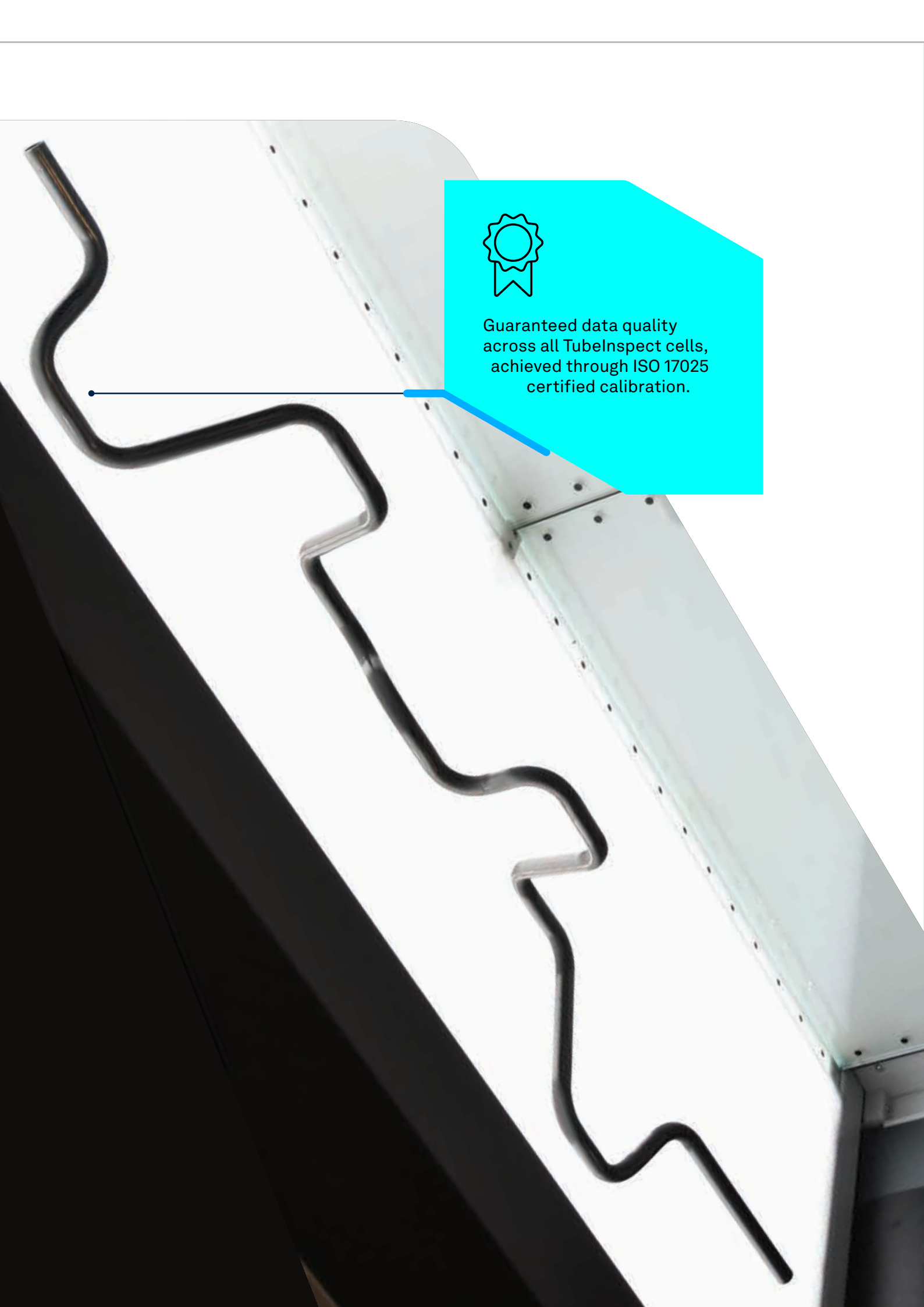
Countless tube measurement options

- Rotary draw bending parts (LRA)
- Bend-in-bend geometries
- Freeform bent parts
- Formed ends and fittings
- Flexible and long brake lines
- Branched parts
- Rectangle-section tubes

Flexible and efficient part handling

Use adaptable workflows for diverse production needs, including CAD import of tubes with circular and rectangular profiles. Easily reverse engineer tubes, transfer existing tube databases to BendingStudio XT, and measure complex ends and brackets using the CAD Adapter function for maximum flexibility and efficiency.





Guaranteed data quality
across all TubelInspect cells,
achieved through ISO 17025
certified calibration.

Tube and wire measurement range

TubelInspect is reliable

Certainty, even in harsh conditions

TubelInspect is the leading solution for automating high-speed tube measurement.

BendingStudio XT provides a communication protocol for integration in fully automated environments, and the high-speed, high-resolution image capture of the TubelInspect hardware allows it to be placed effectively within any automated production line.

Low lifetime costs

Reduce energy consumption with power-saving LEDs and a standard 100-240 V power supply. TubelInspect is a highly stable measurement system that ensures long-term reliability, while its eco-friendly design minimises its environmental impact.

Image based measurements

Avoid mistakes and ensure reliable results – measure drill holes, end formings or fittings and brackets with CAD Adapter. Fast, automatic and user independent.

Consistent accuracy

Operate seamlessly even with temperature fluctuations, thanks to advanced automatic temperature compensation. A stable glass reference and self-controlling calibration further enhance accuracy, ensuring reliable results in any environment.

Guided precision for part replacement

Ensure accurate inspections every time – with software-controlled part positioning in TubelInspect.

Reliable system performance

Reduces downtime risks and ensures smooth operations – with the embedded TubelInspect CPU.

Tube and wire measurement range

TubeInspect is fast

Minimise setup and maximise throughput

TubeInspect brings exceptional efficiency to your bending operations with tools that accelerate every step of the measurement process.

With a simple measurement process, automated workflows, rapid part identification and seamless data transfer, it minimises production cycle setup time and maximises throughput.

Designed for fast, precise measurements, TubeInspect helps you meet tight deadlines without compromising on quality.

It's as simple as, place part in TubeInspect, press button and you're done!

Made for production

Train workers in just 5 minutes to inspect tubes. While defined inspection plans and placement control makes measuring errors almost impossible.

Quick investment returns

Gain more production time for benders as TubeInspect adapts to tube changes instantly, reduces material waste and eliminates bulky physical gauges, for a streamlined, cost-effective workflow.

Fully connected

Seamlessly link measurement to production with direct bender integration. Calculate correction values, send data instantly to your bending machine, and minimise correction loops - ensuring all bends are corrected in one step for faster, more precise tube manufacturing.

Automation-ready

Enable fully automated tube production with rapid, automatic measurements. Instantly adjust bending programs and connect effortlessly to handling systems, keeping your workflow efficient, accurate, and fully optimised for high-speed manufacturing.



TubeInspect models

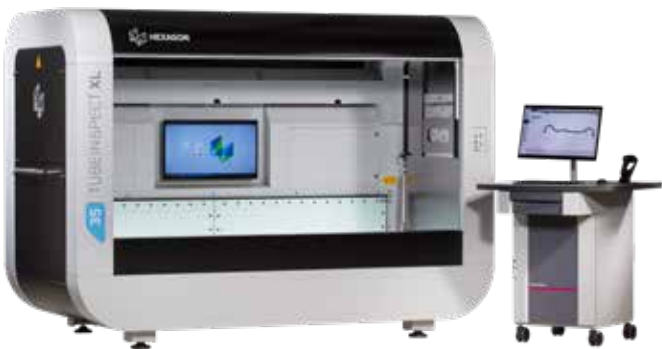
Find the right TubeInspect for your needs

With multiple models and configurations, TubeInspect delivers accurate, repeatable results whether used manually or fully automated. Built for durability and efficiency, each system is engineered to withstand the demands of the shop floor while ensuring fast, reliable measurements.



TubeInspect comes in two sizes:

- **TubeInspect 35 M | 37 M:** Equipped with an 8-camera array, this compact model is ideal for tubes up to 1,000 mm in length and 125 mm in diameter. Perfect for smaller components and high-precision applications.
- **TubeInspect 35 XL | 37 XL:** Designed for industrial-scale measurement, this model features a 16-camera array and can handle tubes up to 7 metres long with diameters of up to 200 mm. Ideal for large, complex tube structures.



TubeInspect has two resolutions:

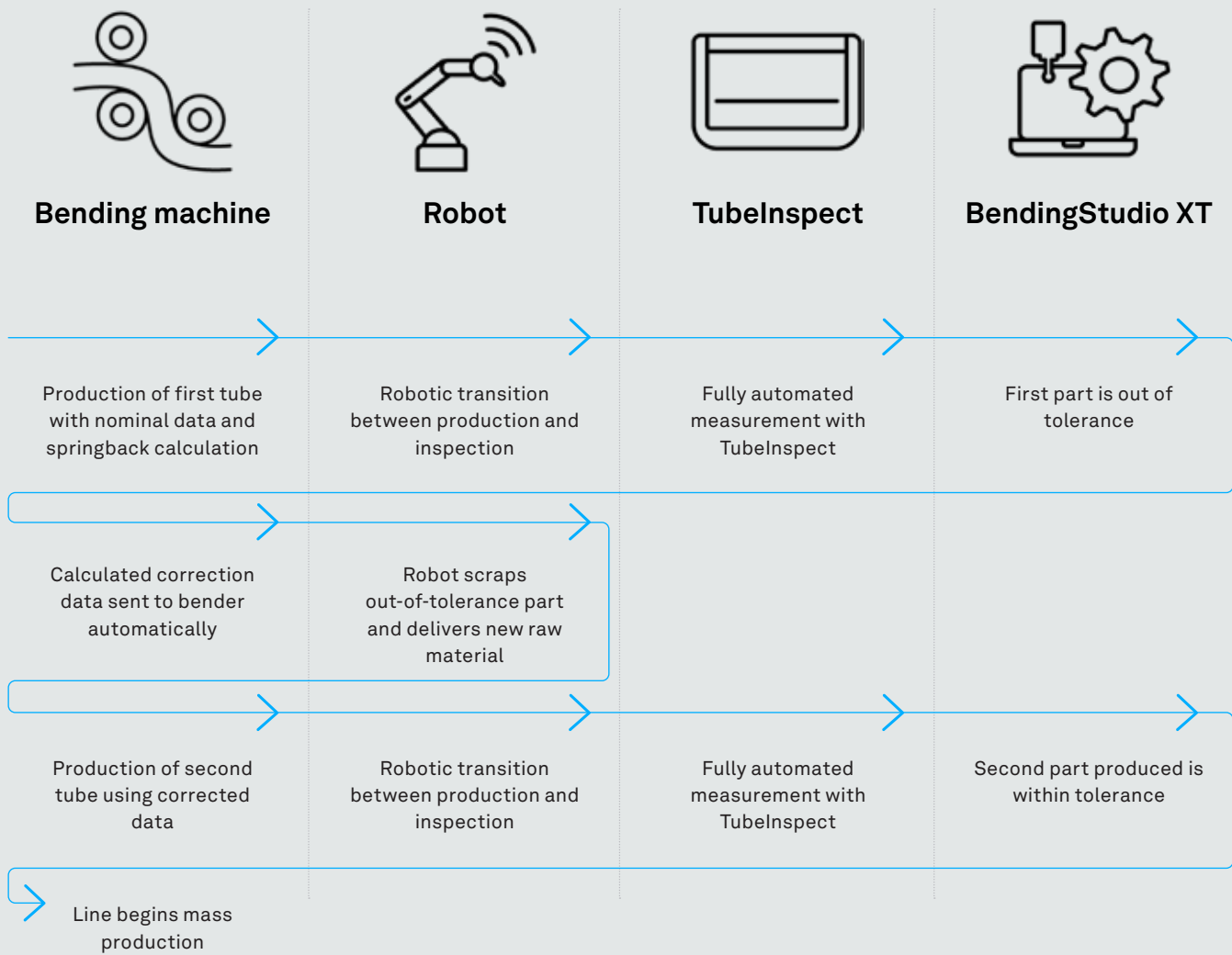
- **Standard resolution (Series 5):** Outfitted with a 3-megapixel camera array, this model delivers fast and precise tube measurement with excellent accuracy.
- **High-end resolution (Series 7):** Featuring advanced 12-megapixel cameras, the series 7 models provide even greater detail, making them ideal for complex geometries and the highest precision demands.

TubeInspect automation

See how Hexagon's range can support you with end-to-end robotic tube production

TubeInspect is the leading choice for high-speed, automated tube measurement.

With BendingStudio XT, it seamlessly integrates into automated production lines, using high-resolution image capture to deliver precise results with minimal operator involvement.



Tube and wire measurement software

BendingStudio XT

A single hub for complete tube and wire inspection

BendingStudio XT is the world's most advanced software for tube and wire measurement, providing a comprehensive, end-to-end solution.

It connects design, production, and quality control processes, ensuring precise results and streamlined workflows for every stage of manufacturing.

With a strong emphasis on metrological precision, it handles everything from initial planning to final quality checks.

For all skill levels

Intuitive workflows, templates, and ergonomic design make it easy for anyone to use, even beginners.

Multiple inspection plans

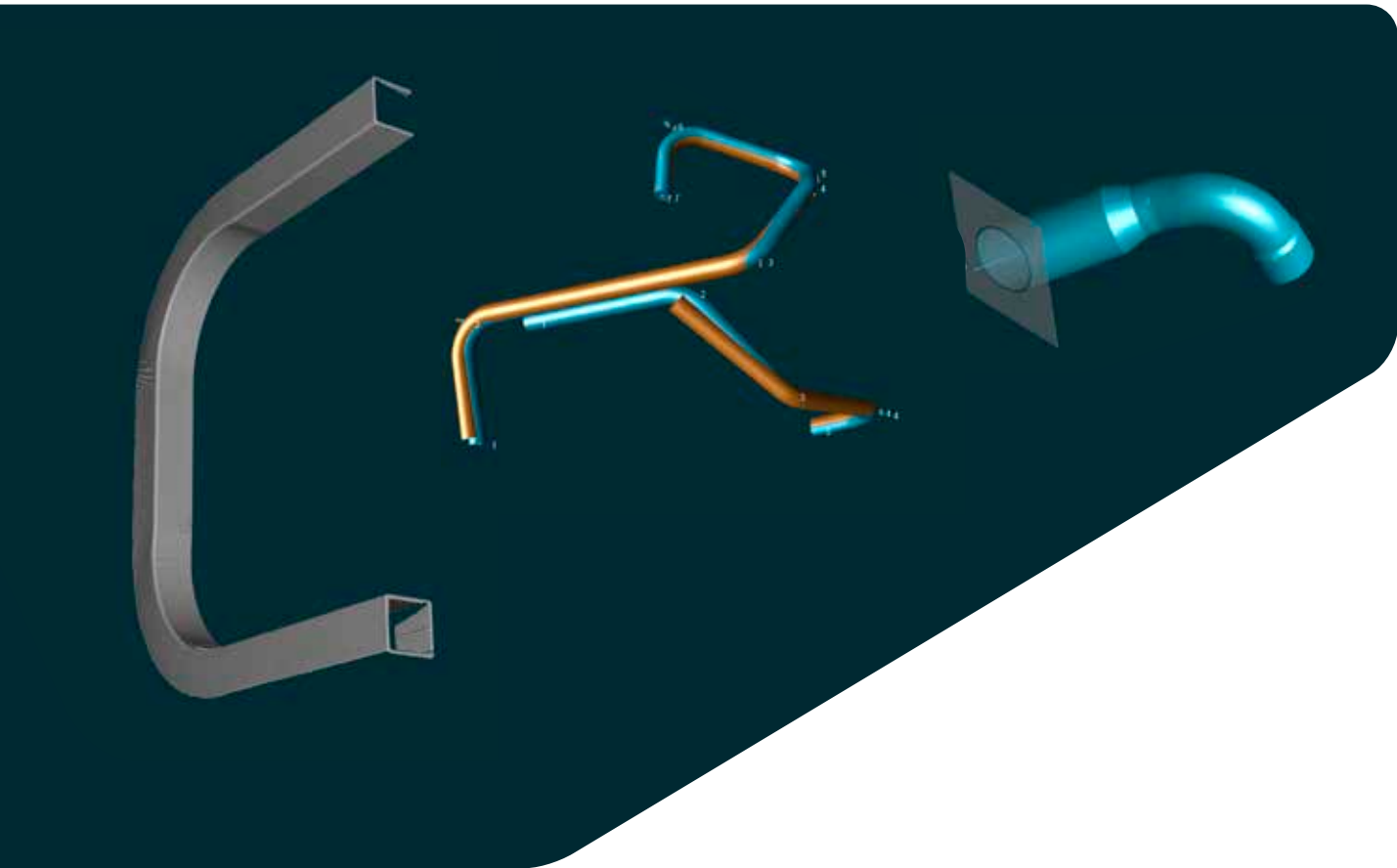
Define specific measurement criteria for each part for greater flexibility and precision.

Clear comparisons

Quickly evaluate parts with easy-to-read actual-to-nominal value comparisons.

Handles any shape of tube or wire

Supports everything from standard tubes to complex freeform and bend-in-bend designs.



Highlights in BendingStudio XT

Real-time feedback and guidance

Offers live feedback and guided part positioning to minimise errors and simplify operations.

CAD Adapter and drill hole measurement

Captures and measures CAD adapters and drill holes with high accuracy, reducing manual effort and ensuring consistent results.

Seamless ERP integration

The new database API (Application Programming Interface) eliminates manual errors, ensuring flawless data accuracy, seamless ERP synchronisation, and automated workflows.

By reducing manual setup time and streamlining data transfer, it ensures reliable, consistent data management across every stage of tube measurement.



BendingStudio XT features

The features supporting your bending production and quality control, end-to-end

Connectivity and integration

Optimised connectivity and data handling across production, quality control, and design offices.

Open tube bender interface for real-time communication of production correction data.

Interfaces for statistical process control software such as qs-STAT.

One-click functionality for measurement results, data import, and export.

Usability and flexibility

Modern, flexible user interface available in multiple languages, adaptable for shop-floor or office use.

Simple and clearly structured handling concept, ideal for diverse environments.

Versatility in measurement

Measurement of a wide range of tube types, including branched, freeform, and rectangular cross-section tubes.

Automatic correction of self-weight deformation effects in thin or elastic workpieces.

Position and orientation measurement of end holders, fittings, and fixtures.

Advanced functionality and reporting

Smart calculation of correction data for bent parts, including pre-cut raw material.

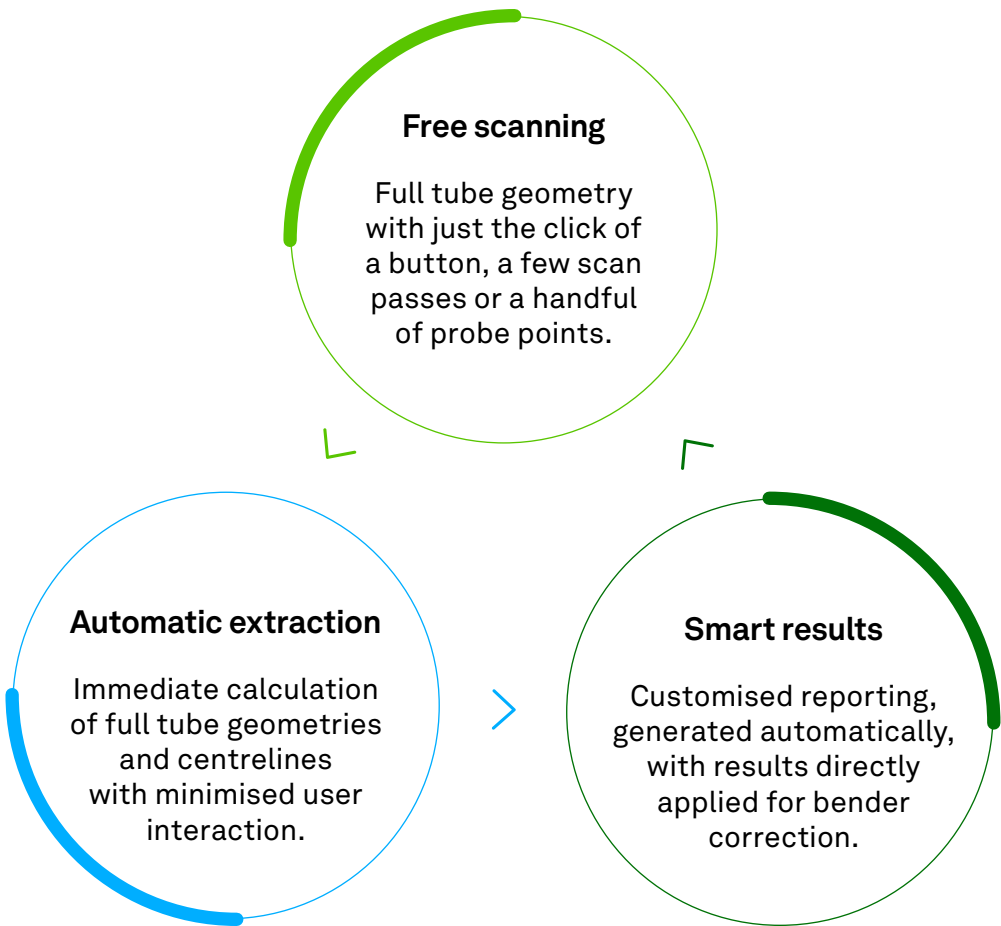
Powerful reporting tools with on-the-fly previews, configurable 3D views, and extensive report template libraries.

Completely automated data flows and result documentation when used with the API and connected to ERP systems.

BendXtract technology

The algorithm driving your tube and wire inspection

At the core of BendingStudio XT's high-performance inspection is BendXtract technology - powerful algorithms that quickly collect, analyse, and convert measurement data into actionable, customised reports.



BendingStudio connectivity

See how the software integrates with bending machines

BendingStudio XT ensures seamless compatibility with bending machines worldwide, supporting a wide range of file formats and leading machine brands.

By integrating correction data directly into CNC bending programs, it simplifies workflows, improves throughput, and reduces production downtime, making it an essential tool for your manufacturing processes.

Data import formats

- G-Tube (GTT)
- TubeShaper (TSP)
- DOCS (DS)
- Vector (PRT)
- CSV
- FIF
- SV
- VDA
- XML
- \$\$\$
- Other ASCII text formats individually configurable; possible to import multiple files in one batch

Data export formats

- CSV
- FIF
- SV
- Other ASCII text formats individually configurable; DFQ (qs-STAT)

Bending machine connection

BendingStudio XT offers the simplest bending machine integration on the market, with built-in interfaces for over 45 leading bender brands worldwide.

This seamless connectivity ensures fast setup, real-time data transfer, and precise bending corrections for a more efficient production process.

BendingStudio XT packages

See the software options you can select

Discover the flexibility and power of Hexagon’s BendingStudio XT, now available in tailored packages to suit your production and quality control needs.

Whether you require core functionality or advanced features for automated workflows, these packages and add-ons ensure you have the tools to streamline operations, enhance precision, and boost productivity.

Choose the right combination to match your business goals and scale as your needs evolve.

Packages	Options	Options for all
STANDARD - User management, part database including database API - Measurement of bent, curved (free-formed), and straight parts with cylindrical cross sections - Bender interfaces, report generator	PROFILE Measurement of parts with oval or rectangular cross section CAD WIZARD Tool for importing CAD files, extracting bending geometries	OFFLINE Seat for offline processing of data OFFLINE FLOATING Seats for offline processing of data DATABASE SERVER Provides 24/7 access to parts database hosted on separate server
PREMIUM - Includes STANDARD, PROFILE, and CAD Wizard - Measurement of bevel cut ends, tube-hose combinations (only with TubeInspect) - Positions of diameter changes - Calculation of corrections for free-formed parts	CAD ADAPTER Measuring function to determine position and direction of, for example, mounted holders or attachments AUTOMATION Remotely controls TubeInspect when used in a fully automated manufacturing cell	



eMobility meets tube and wire measurement

See the benefits for your eMobility application

The surge in eMobility is revolutionising motor production, with hairpin and busbar technologies at its core. Tube and wire measurement solutions are crucial for ensuring precision, scalability, and efficiency in electric vehicle (EV) manufacturing.

Why choose Hexagon?

With decades of expertise in photogrammetry-based solutions, Hexagon sets the standard for eMobility manufacturing by guaranteeing your production processes are:



Precise and efficient

Our systems deliver reliable 3D measurements for the calculation of angles and distance, reducing setup times and optimising bending parameters to improve production efficiency.



User-friendly and adaptable

Easy to use with minimal training, these systems seamlessly integrate into automated lines providing you with consistent, high-quality results.



Cost-effective and eco-friendly

By minimising material waste and delivering fast results, our solutions ensure quick ROI.

Eco-friendly features, like power-saving LEDs and no moving parts, reduce lifetime costs.



Future-ready

Built to tackle today's challenges and adapt to tomorrow's demands, Hexagon keeps you ahead in the evolving eMobility market.

Busbars

Busbars, with their flat bends and complex geometries, pose challenges in electric vehicles production.

Hexagon's TubeInspect 37 M or 37 XL, paired with BendingStudio XT Premium, delivers precise, fast measurement and inspection. It provides real-time correction data for CNC bending programs, reduces scrap, and simplifies reverse engineering.

Built for automation, this system ensures high accuracy and efficiency, even for intricate shapes and raw material variations.



3D Harpin Inspect

Designed for high-speed electric motor hairpin measurement, TubeInspect 37 M with BendingStudio XT measures 3D contours in seconds.

This robust turnkey solution supports the entire hairpin production process, from setup to quality control.

Built for automation and shop-floor use, it ensures quick setup, high repeatability, and seamless integration into production workflows.





Portable tube and wire measuring range

Absolute Arm

High-precision laser scanning, infrared and touch probing

The Absolute Arm combines advanced laser scanning, infrared, and touch probing technologies with the powerful analysis capabilities of BendingStudio XT.

This portable system delivers high-speed, high-accuracy manual measurement of tubes and wires. It allows for full non-contact measurement and geometry definition without the need for clamping or alignment, even on reflective surfaces.

With its strengthened arm structure and custom-designed probe technology, the Absolute Arm is an ideal portable complement to the TubeInspect series.

Portable

Measure tubes and wires in new environments, whether at a bending machine or in the centre of production.

Flexible

Work seamlessly with both flexible and rigid tubes, freeform or angular geometries.

Easy

Measure without special clamping or alignment – it's simple.

Accurate

Gain precise, repeatable results using advanced non-contact measurement technology.

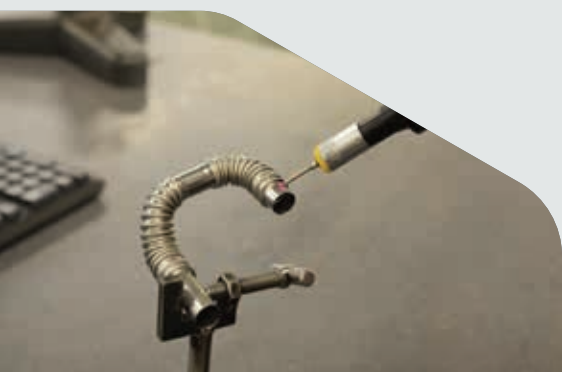
Versatile

Measure a wide variety of surfaces, including shiny materials.



IP54 rated: A first for measurement arms

The Absolute Arm's IP54 rating protects against dust and water ingress. This ensures that your equipment is usable in new environments.



Portable tube and wire measuring range

Absolute Arm scanning

Versatile tube and wire analysis using laser scanning

Versatile

Versatile for multiple tasks:

Functions as a high-end portable measuring arm for tube analysis and other measuring needs.

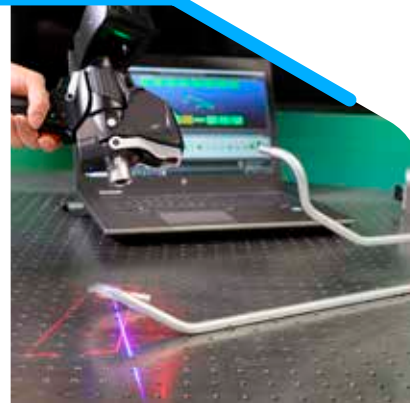
Adaptable for tube types: Measures flexible and malleable tubes of any length and diameters up to 300 millimetres.

Wide material compatibility:

Accurately scans tubes of various materials, colours, and surface finishes.

CAD Adapter function: Measures position and orientation of end holders, fittings, and fixtures using scanner point cloud analysis.

Drill hole measurement: Accurately detects and measures drill holes to ensure precise alignment and quality control.



Precise and efficient

Accurate geometry data collection: Collects precise tube and wire measurements without scanning the entire surface or needing complex fixturing.

High-definition scanning: Delivers fast, precise determination of full tube and wire geometries.

Repeatable results: Ensures user-independent, consistent measurements every time.

Portable

Highly portable system: Suitable for use anywhere in the production process.

Battery and WiFi operation: Full-speed scanning with total portability for flexible on-site use.

Accessibility: Easily measures parts in hard-to-reach areas.



See the range of scanners for the Absolute Arm

Absolute Scanner AS1

The Absolute Scanner AS1 is the flagship 3D scanning sensor for Absolute Arm 7-Axis systems.

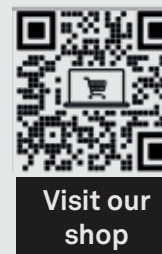
Using cutting-edge blue-laser technology and advanced programming, it combines 'always-on' maximum performance with simple usability to deliver high-productivity non-contact 3D measurement.



RS5 Laser Scanner

The RS5 Laser Scanner is a removable 3D scanner designed for use with the Absolute Arm 7-Axis.

It delivers high-speed 3D scanning for surfaces and features on a wide range of finishes and materials at a lower cost than a flagship scanner.



Visit our shop

Portable tube and wire measuring range

Absolute Arm probing

Complete tube analysis through infrared and touch probing

Versatile

Broad compatibility: Infrared and touch probes enable inspection of almost any tube geometry or material.

GD&T ready: Hardware supports complete GD&T (Geometric Dimensioning and Tolerancing) functionality when used with software like Inspire or PC-DMIS.

Probe flexibility: Automatic recognition and repeatable mounting allow easy probe swapping without recalibration.

Universal application: Compatible with all standard Absolute Arm models and dedicated tube models with 2.5- or 3-metre measurement volumes.



Easy

Improved ergonomics: Absolute Arm tube models feature a stronger counterbalance for faster measurement and reduced operator fatigue.

Instant operation: Requires no warm-up or encoder referencing - simply switch on and start measuring.

Portable

Portable functionality: Full WiFi and hot-swappable battery operation provide maximum mobility and flexibility.

Ease of use in any environment: Designed for portability, allowing measurements to be taken wherever needed.



See the range of probes for the Absolute Arm

Tube probes

Dedicated tube inspection is provided by a range of infrared non-contact tube probes that can perform fast diameter measurements along key parts of the tube in order to deliver a full picture of the tube geometry.

Six sizes of tube probes are available for tube diameters from 4 to 130 millimetres. They are compatible with measurement of almost any tube material, including malleable surfaces.



Touch probes

The touch probe functionality that comes as standard with every Absolute Arm model can also be applied to tube measurement.

It allows for measurement of tubes with a greater diameter than is possible with a tube probe, as well as inspection of tube end-forms that cannot be captured by a tube probe, such as bevel-cut ends or ends with expansions.



Portable tube and wire measuring

Handheld 3D scanners

Highly portable and flexible tube inspection solutions

Hexagon's handheld 3D scanners are ergonomic, non-contact scanning devices that use multiple laser lines. Fast and accurate point-cloud evaluation in BendingStudio XT enables efficient inspection of standard tubes, with full support for all Hexagon's handheld 3D scanning devices.



ATLASCAN Pro

Entry-level scanning solution for small tubes

ATLASCAN Pro is an entry-level scanning measurement solution for small tubes with outer diameters of up to 120 mm.

Designed for industrial applications such as reverse engineering and quality control, it combines handheld portability with ease of use.

The system is well suited to small- to medium-sized scanning tasks, including tube scans of up to 3 metres in length.

Compact and lightweight, ATLASCAN Pro is ideal for rapid deployment across multiple sites and environments, offering high flexibility and portability.



HYPERSCAN Ultra

Optical tracking 3D scanner for inspection of large tubes

HYPERSCAN Ultra is an optical tracking 3D scanner designed for cost-effective handheld inspection of large tubes.

It is intended for scanning applications in unstable environments and for objects above 4 metres, where optical tracking technology and a semi-fixed, dedicated setup are required to achieve high volumetric accuracy.

Using external cameras or sensors, the system delivers accurate and consistent performance across large measurement volumes.

HYPERSCAN Ultra is ideal for customers who require fixed or semi-fixed large-scale scanning solutions, where accuracy and coverage are prioritised over portability.

Portable tube and wire measuring

Absolute Tracker

Large-scale tube measurement

The Absolute Tracker streamlines large-scale tube inspection with handheld scanning and optimised workflows. With the Leica Absolute Tracker AT960 and 6DoF devices like the Absolute Scanner AS1, it delivers precise, reliable results for even the largest projects.

Powered by BendingStudio XT, it ensures fast, accurate validation and correction, seamlessly integrating into production processes.

Measurement capabilities

Unlimited size compatibility: Measures tubes of unlimited length and diameters up to 2.5 metres.

Efficient data collection: Captures accurate geometry without scanning the entire surface.

Large-scale inspection: Offers up to 30-metre range for scanning and probing.

Precise performance

High-definition results: Delivers rapid, precise geometry determination.

Consistent accuracy: Ensures repeatable, user-independent measurements.

CAD Adapter function: Accurately measures positions and orientations of fittings, fixtures, and drill holes, ensuring precise alignment and quality control.

Material versatility: Scans a wide variety of materials, colours, and finishes.

Portable and flexible

Built for tough environments: Reliable performance across challenging applications.

Portable design: Reduces the need to move large tubes to inspection sites.

Wireless mobility: Operates with full-speed WiFi and battery power.



Design your solution

Choose your tube and wire system

Customise for your industry

Step 1

Choose your hardware

Step 2

Choose your model and size

Step 3

Choose your tools or accessories

Step 4

Choose your BendingStudio XT package

Step 5

Choose your digital platform

TubeInspect

Manual | Automatic



Scanning



Probing



Small tubes



Large tubes



Scanners and probes



Optional workstation



83 | 85 | 87

1.2 - 4.5 m



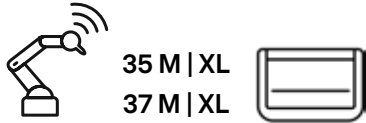
Scanners



Probes



Automatic with optional Programmable Logic Controller (PLC)



AT960

SR | MR | LR



BendingStudio XT

ONE POWERFUL SOFTWARE FOR ALL HARDWARE

Packages and options:

Standard

Options for standard:

Profile

CAD Wizard

Premium

Options for premium:

CAD Adapter

Automation

Options for all packages

Offline

Offline floating

Database Server

qs-STAT

Hexagon software

BendingStudio XT

Q-DAS interface

Product specifications

TubeInspect

Solution specifications



	35 M	37 M	35 XL	37 XL
Measurement technology	High-resolution camera array			
Round profiles – measurable diameter	2-125 mm	0.8-125 mm	3-200 mm	1.5-200 mm
Rectangular profiles – measurable diagonal (min. side length)	8-125 mm (2 mm)	2-125 mm (0.8 mm)	12-200 mm (3 mm)	8-200 mm (1.5 mm)
Measuring volume	1000 x 580 x 400 mm		2600 x 1250 x 700 mm	
Max. tube length	Unlimited (with repositioning)			
Bending angle	1-340°			
Min. push between bends	Bend-in-bend and freeform possible			
Measurement accuracy (tube sheath deviation)	0.035 mm (1 σ)		0.085 mm (1 σ)	
MPE (E) ¹	80 μm + 20 μm * Length [m]		120 μm + 20 μm * Length [m]	95 μm + 20 μm * Length [m]
CAD Adapter and drill hole	no	yes	no	yes
Tubes with rectangular cross section	yes			
Automation compatibility	no	yes	no	yes
Ready to measure / setup	yes			

¹ MPE (Maximum Permissible Error) – determination of the length measurement error E acc. VDI/VDE 2634 Part 1:2002, calibration certificate according to ISO 17025 accreditation from the German Accreditation Body (DAkkS).

Hardware specifications

	35 M	37 M	35 XL	37 XL
Measurement speed	> 3 s/measurement			
Camera array	8 high-resolution digital cameras with GigE technology		16 high-resolution digital cameras with GigE technology	
Resolution	3 MP	12 MP	3 MP	12 MP
Reference field	Three-dimensional glass reference surface			
System dimensions (W x D x H)	1140 x 746 x 1140 mm		2980 x 1640 x 2300 mm	
Weight	260 kg		1250 kg	
Power requirement	100-240 V 50-60 Hz			
Max. AC Input	772 VA		1700 VA	
Operation AC ²	215 VA		690 VA	
Power saving mode	130 VA		265 VA	
Operating temperature	5-45 °C			
Relative humidity	10 - 90 % not condensing			
Marks of conformity	CE, UKCA			

² Image acquisition, ground-LED and screen activated.

Product specifications

Absolute Arm

Solution specifications



	AS1	RS5	Tube probe	Touch probe
Measurement technology	Blue laser scanner	Red laser scanner	Infrared	Contact
Round profiles – measurable diameter	3-300 mm		4-130 mm	> 50 mm
Rectangular profiles – measurable diagonal (min. side length)	6-300 mm (3 mm)	10-300 mm (3 mm)	n/a	n/a
Measuring volume	2-4.5 m diameter		1.2-4.5 m diameter	
Max. tube length	Unlimited (with repositioning)			
Bending angle	1-340°		1-180°	
Min. push between two bends	Bend-in-bend and freeform		Bend-in-bend with limitations; freeform not possible	
Measurement accuracy (tube sheath deviation)	0.05 mm (1 σ)		0.1 mm (1 σ)	
CAD Adapter and drill hole	yes	no	no	no
Tubes with rectangular cross section	yes		no	
Automation compatibility	no			
Ready to measure / setup	yes			



Product specifications

Handheld 3D scanners

Solution specifications



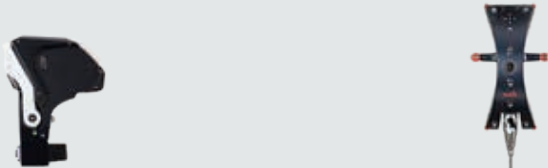
	ATLASCAN Pro	HYPERSCAN Ultra
Measurement technology	Blue laser scanner	Optical tracking blue laser scanner
Round profiles – measurable diameter	10-120 mm	20-300 mm
Rectangular profiles – measurable diagonal (min. side length)	15-120 mm (10 mm)	30-300 mm (20 mm)
Measuring volume	Up to 3 m	1.0-5.5 m
Max. tube length	Unlimited (with repositioning)	
Bending angle	1-340°	
Min. push between bends	Bend-in-bend and freeform	
Measurement accuracy (tube sheath deviation)	0.13 mm (1 σ)	
CAD Adapter and drill hole	no	
Tubes with rectangular cross section	yes	
Automation compatibility	no	
Ready to measure / setup	Retro targets needed	yes



Product specifications

Absolute Tracker AT960

Solution specifications



	AS1	Leica T-Probe
Measurement technology	Blue laser scanner	Contact
Round profiles – measurable diameter	Up to 2.5 m	> 50 mm
Rectangular profiles – measurable diagonal (min. side length)	6 – 300 mm (3 mm)	n/a
Measuring volume	Up to 30 m	
Max. tube length	Unlimited (with repositioning)	
Bending angle	1 – 340°	1-180°
Min. push between bends	Bend-in-bend and freeform	Bend-in-bend with limitations; freeform not possible
Measurement accuracy (tube sheath deviation)	0.075 mm (1 σ)	0.15 mm (1 σ)
CAD Adapter and drill hole	yes	no
Tubes with rectangular cross section	yes	no
Automation compatibility	no	
Ready to measure / setup	yes	



Aftercare

Service and support

Discover your options



World-class products to rely on

Drawing on decades of research and development experience, tube and wire technology from Hexagon's Manufacturing Intelligence division is built on a long history of outperforming technological innovation. Deriving quality from experience to drive productivity is what keeps Hexagon in front and able to deliver first-class solutions for industries around the world.

That's why, along with the assurance of ten years of serviceability, owners of tube and wire solutions from Hexagon benefit from a 24-month factory warranty as standard – our guarantee that our technology will always meet the needs of our users.



World-class support delivered locally

The international presence of Hexagon guarantees comprehensive aftersales support and services across the globe. With the largest dedicated service team of any metrology equipment manufacturer and an emphasis on locally delivered solutions, Hexagon is unmatched from service, repair, certification and calibration through operator training and software maintenance and upgrades.



The service and support that we are getting from the team at Hexagon is great. Their expertise in the tube production world is very unique and extremely valuable.

Thorsten Dammann, Advisor in Technical Service of Assembly Manufacturing at CLAAS

We always find open ears and a willingness to find solutions, for even the most complex parts.

Florian Biebl, Managing Director at Albert Biebl GmbH

World-class service made simple

Hexagon offers a wide range of support services extending well beyond the point of purchase. Delivered by experienced and skilled engineers at ISO-certified laboratories, local Hexagon Precision Centres or even on-site to minimise downtime, our after-sales portfolio is the most complete on the market.

- Maintenance and warranty plans that ensure equipment availability
- Trouble-free usage and minimal downtime
- Preferred hotline access at no additional cost
- Access to professional advice whenever needed

Consider a service plan

Your tube and wire solution is essential to your production, so keep it performing at its very best with a flexible service plan.

Ensure long-term reliability and measurement accuracy while protecting your investment throughout its lifetime.

Speak with your local Hexagon customer relationship representative to find the service option that best supports your operation.



Hexagon is the global leader in measurement technologies. Our precision measurement, positioning, and autonomous solutions transform the world's most vital industries. From aerospace & defence, automotive, construction, general manufacturing, to mining and more, we provide the confidence that customers rely on to build, navigate, and innovate.

Learn more about Hexagon (Nasdaq Stockholm: HEXA B) at hexagon.com and follow us [@HexagonAB](https://twitter.com/HexagonAB).