HEXAGON

Brochure

The Absolute Arm range

Meet the world's first IP54-protected portable measuring arm, for portable 3D scanning and probing anywhere


85
ABSOLUTEARM

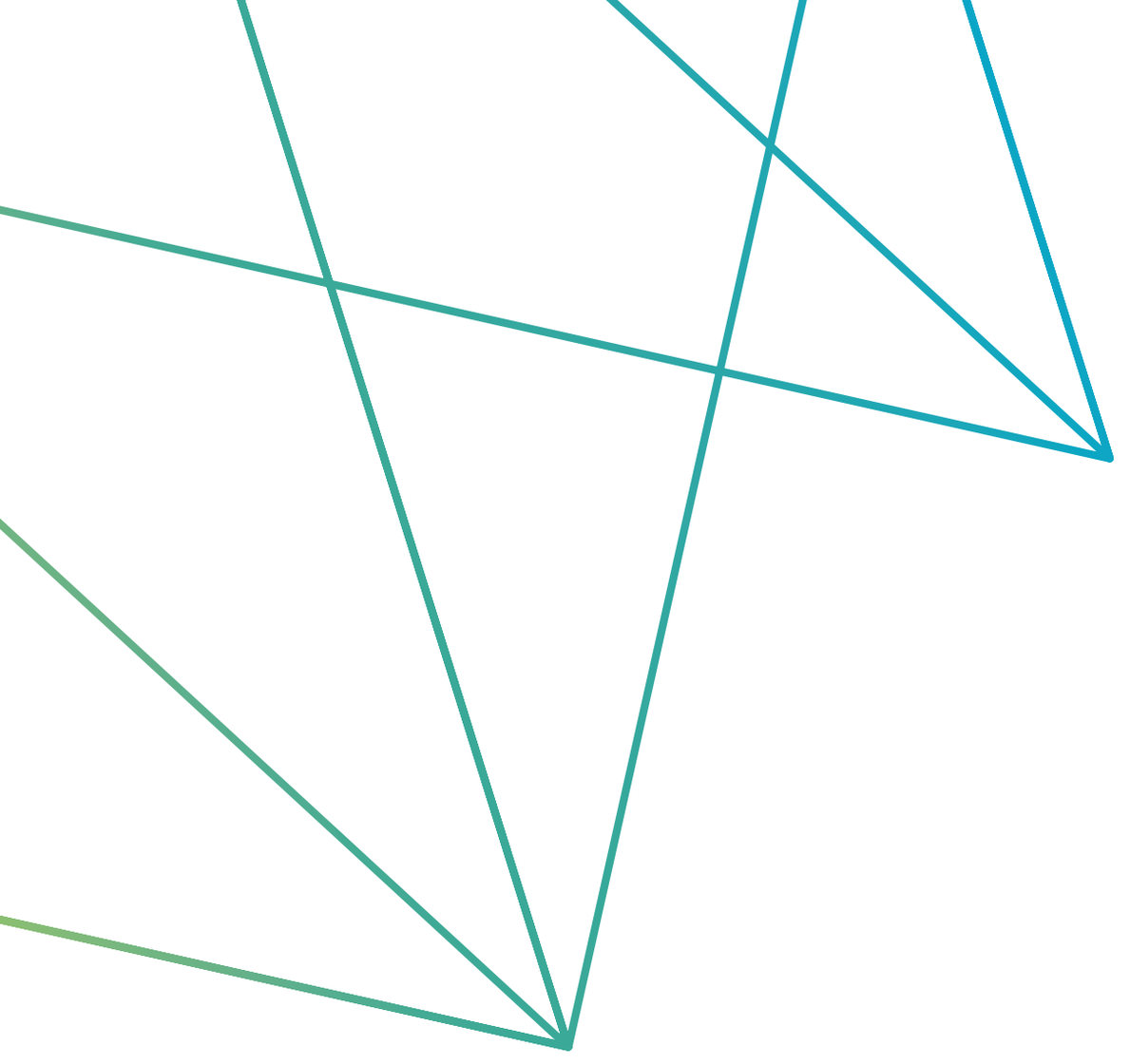
The Absolute Arm

Designed for anywhere in the world.

The Absolute Arm is made for measurement anywhere, from the quality room to the shop floor, from the design table to a milling machine, from air-conditioned stability to humid and dusty workshops. Full IP54-rated protection – a world first for a portable measuring arm – supports this go-anywhere measurement concept, along with the Absolute Arm's easy portability and simple usability.

With four different 3D scanning options, the Absolute Arm is made for the future of industrial measurement. High-speed, high-productivity, user-friendly and highly versatile – this is a portable measuring arm that offers more than incremental changes, delivering the new features requested by users as they look to measure in ever more challenging environments.

Contents



Robust hardware meets world-class performance.

The product of over 35 years of experience in developing articulated measuring arms, the Absolute Arm combines the latest advancements in materials and measurement science.

Every component has been designed with practicality, usability, stability and resilience in mind. This platform of innovative technology makes high-accuracy portable measurement effortless in any situation.

Movement
The unique Zero-G Counter Balance system and low-friction rotating grips reduce user fatigue and maximise accuracy by minimising inertia.

Encoders
Patented Absolute Encoders within every articulated joint are exclusive to Hexagon and make the Absolute Arm the only portable measuring arm that has completely eliminated warm-up times and encoder referencing before use.

Materials
High-tech carbon-fibre tube construction ensures strength and thermal stability under any environmental conditions.

Touch control
Multi-functional control buttons and a convenient touchscreen OLED wrist display put measurement control directly in the user's hand.

Protection
High-quality construction and sealing have allowed the Absolute Arm to be the world's first IP54-rated portable arm, as well as allowing for operation in environmental temperatures of up to 45 degrees Celcius.

Measurement
A wide range of probes and high-speed 3D scanners combined with a choice of 7 sizes and 3 accuracy levels delivers endlessly flexible measurement functionality.

Security
The HomeDock and SmartLock features allow the arm to be stowed and locked in place between measurements, for greater security during transport, setup and station changes.

Feedback
Easy user interaction in even the harshest industrial environments through visual, acoustic and haptic feedback functions, augmented with Bluetooth technology.

Portability
True wireless connectivity and hot-swappable batteries give greater flexibility when moving the arm around the shop floor, along with full-speed WiFi scanning performance.

Movement, measurement and monitoring all around the world.

The Absolute Arm was designed from the ground up with usability in mind. The goal is to deliver consistent, reliable and accurate results, whatever the experience level of the user.

Accuracy

The Absolute Arm range offers probing accuracy as fine as only 6 microns and scanning system accuracy to within 43 microns.

Resilience

Full IP54 protection combined with robust and shock-resistant transportation cases keeps the arm properly protected and in perfect condition wherever and however it's needed.

Portability

Even the largest Absolute Arm weighs less than 11 kilograms, making set-up and repositioning a quick and easy process.

Connectivity

Industry 4.0 ready with full 300 Hertz scanning performance over WiFi and simple integration within Hexagon's Smart Factory concept.

Productivity

The SHINE technology of the Absolute Scanner AS1 takes data quality to a new level without compromising on speed, while the ground-breaking RS-SQUARED Area Scanner brings ultra-fast structured light scanning to a portable measuring arm for the first time.

Asset management

The Absolute Arm is now compatible with the HxGN SFx | Asset Mangagement solution, allowing for monitoring and analysing device status in real-time, as with Hexagon laser tracker and CMM systems.

Repeatability

A patented kinematic probe joint minimises downtime by allowing all probes to be swapped on the fly with no need for realignment.

Monitoring

The SMART – Self-Monitoring Analysis and Reporting Technology – system provides full diagnostic monitoring for comprehensive measurement reliability.

Certification

Probing accuracy certified according to ISO 10360-12 as standard, along with full scanning system accuracy according to ISO 10360-8 Annex D. Accuracy verification can be performed directly by the user with a supplied CMM-certified artefact.

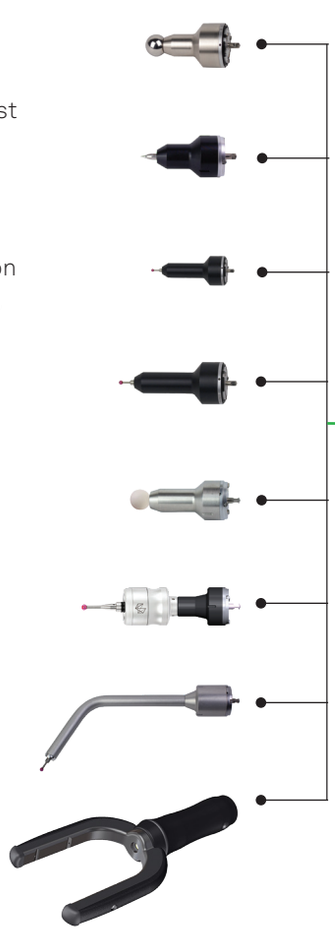
Compatibility

An established and reliable software interface that is compatible with and supported by all major portable metrology software packages.

All the tools for all the trades in all the world.

Every Absolute Arm is compatible with a wide range of probes, scanners and other accessories that make it without doubt the most versatile and multifunctional portable measuring arm in the world.

Scan with AS1, RS5, RS-SQUARED or HP-L-8.9. Probe with almost a hundred different styli and tips, from angled to extended, from touch sensitive to infrared. Add functionalities like battery operation and WiFi connectivity with a Control Pack. Choose between stands, tripods and trolleys, screws, clamps or a magnetic base. Combine with every major metrology software on the market.



Absolute Scanner AS1
Flagship high-speed blue laser 3D scanning performance with IP54 protection.

RS5 Laser Scanner
Reliable general-purpose 3D scanning.

RS-SQUARED Area Scanner
Unique ultra-high-speed structured light 3D scanning technology.

HP-L-8.9 Laser Scanner
Entry-level 3D scanning for 6-axis systems

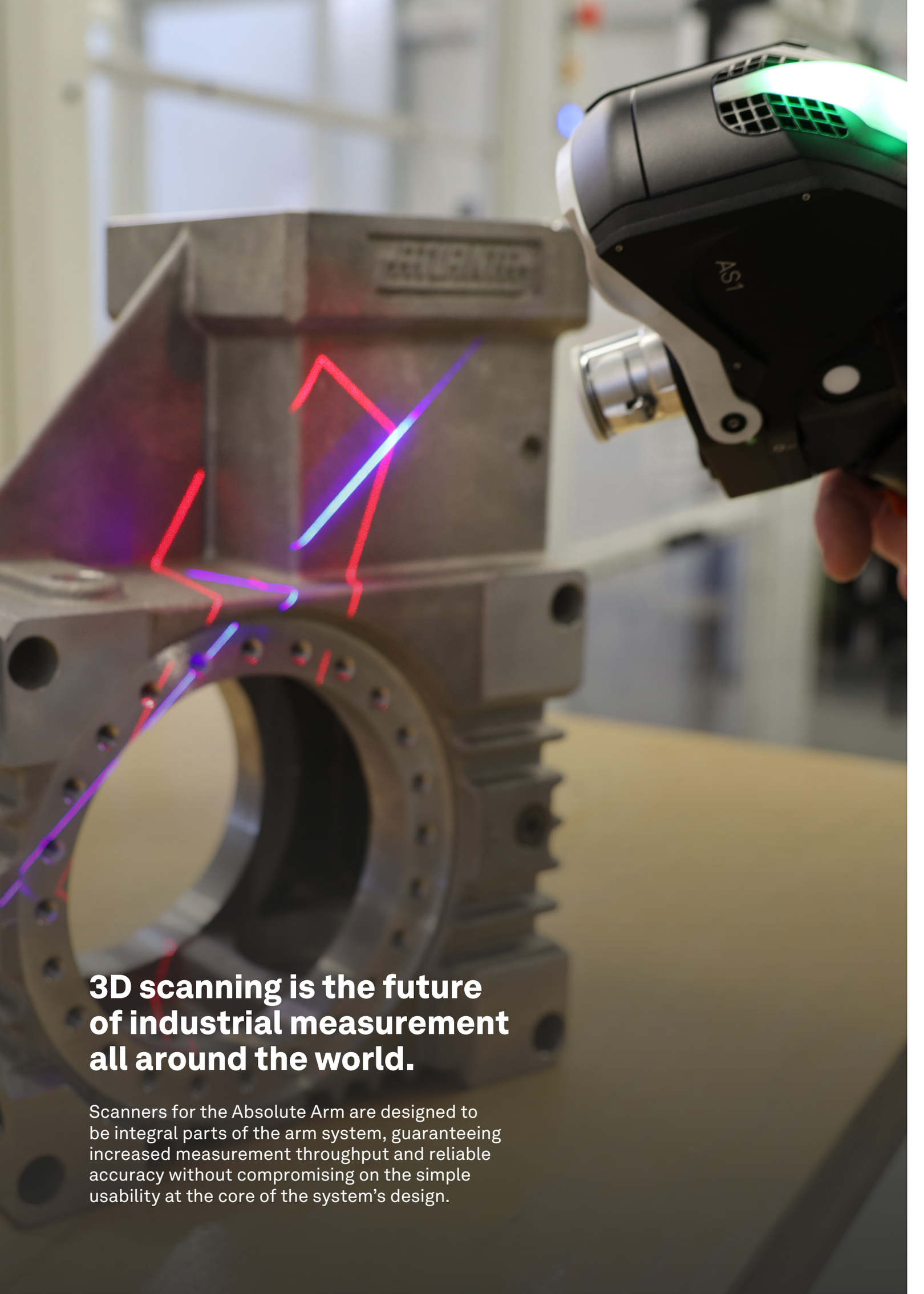
Look.
Touch.
Control.

All full-size 7-axis Absolute Arm models are fitted with an OLED touchscreen control and information display panel on the wrist. This allows the operator to quickly change settings and check results without the need to go back-and-forth between the arm and their control computer.

Slide off. Slide on. Scan.

The unique modular wrist of the 7-axis Absolute Arm systems allows for a range of quick and easy customisations, including even removing or changing the scanner unit with just the flip of a lever.

- Quickly switch between laser scanning, area scanning and touch probing in the same measurement session.
- A mounted 3D scanner can even be quickly and easily completely removed by the user for easier probing in tight areas.
- All probes and scanners can be remounted without realignment, allowing for immediate measurement.
- Pistol grips are available in three different sizes – choose the most comfortable fit for the user.
- Remove the grip completely to measure hard-to-reach areas such as holes and cavities.
- The Absolute Scanner AS1 can also be mounted onto an Absolute Positioner AP21 unit and used with a laser tracker for larger-scale measurement.



3D scanning is the future of industrial measurement all around the world.

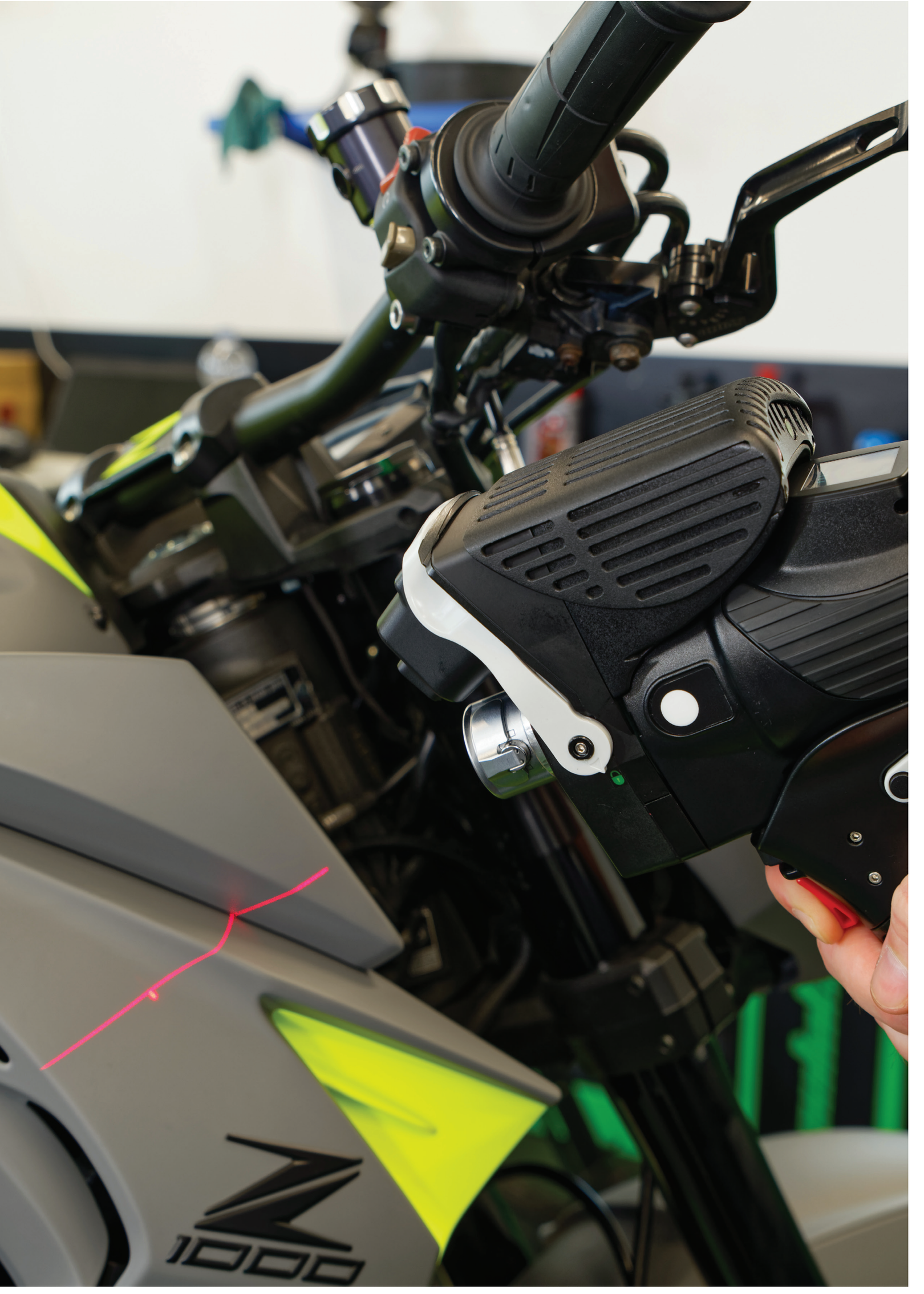
Scanners for the Absolute Arm are designed to be integral parts of the arm system, guaranteeing increased measurement throughput and reliable accuracy without compromising on the simple usability at the core of the system’s design.

With the Absolute Scanner AS1, there are no compromises. There's no need to reduce scanning speed to achieve best-quality data, even when using a WiFi connection; no sacrificing usability and productivity in the search for better quality. Just premium engineering that guarantees reliable, high-accuracy results.

Built on Hexagon's unique SHINE technology, the AS1 always delivers full scanning performance, even on the most challenging part surfaces. Whether faced with glossy black plastic automotive body parts or moulded carbon-fibre components, the innovative algorithms behind SHINE allow the AS1 to scan with no reduction in quality or productivity. Full frame rate and full laser line width, without spray and without the forced performance reductions that are a hallmark of other scanners.

Absolute Scanner AS1

- ✓ High-quality scan data collected at full speed, whatever the part.
- ✓ Scan 99 percent of surface types with default exposure settings thanks to Systematic High-Intelligence Noise Elimination (SHINE) technology.
- ✓ Extra-wide scan line for faster part coverage.
- ✓ High-quantity data collection without sacrificing data quality.
- ✓ Effortlessly removed from the arm for easier probing of hidden areas.
- ✓ Remountable in seconds with no time-wasting realignment.
- ✓ Horizontally oriented scan line for more comfortable measurement.
- ✓ Projected laser range finder makes correct scanner positioning simple.
- ✓ Full-speed scanning performance over WiFi or a single cable.
- ✓ IP54 protection rating for measurement in harsh environments.
- ✓ Complete System Scanning Certification defined according to ISO 10360-8 Annex D.
- ✓ Cross-platform compatibility makes the AS1 the first scanner that can be used with both a portable measuring arm and a laser tracker.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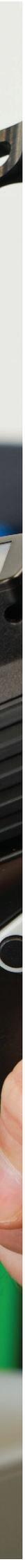


The RS5 Laser Scanner is a general-purpose 3D scanner ideal for less-challenging applications like design modelling, tube or casting measurement, product benchmarking or virtual assembly.

Retaining the trademark flexibility of the Absolute Arm range, the RS5 can be removed for easier handling and measuring in tight spaces just like the flagship Absolute Scanner AS1, and likewise is also quickly remountable with no need for realignment.

Built on reliable technology, the RS5 Laser Scanner is a more affordable alternative to a premium laser scanner.

RS5 Laser Scanner

- ✓ High-quality scan data without high-end investment.
- ✓ Wide scan line covers parts quickly.
- ✓ Easily removed from the arm for better usability while probing.
- ✓ Remountable in seconds with no time-wasting realignment.
- ✓ Horizontally oriented scan line for more comfortable measurement.
- ✓ Full-speed scanning performance over WiFi or a single cable.
- ✓ Complete System Scanning Certification defined according to ISO 10360-8 Annex D.

Often, the time needed to scan a part is the most important factor when planning measurement tasks. The part might only be available for measurement for a limited time or restricted to an inconvenient location. That's why Hexagon has created the RS-SQUARED Area Scanner, the world's first structured light scanner mounted on a portable measuring arm.

RS-SQUARED is designed to ensure scanning is as fast as possible by combining the speed of an area scanner with the versatility of a measurement arm. Large 'tiles' of data are captured instead of the laser lines, but without the need for the reference markers that are typical of other area scanners. It's ideal for users who have large backlogs of parts or limited time in which to scan them.

RS-SQUARED Area Scanner

- ✓ Up to 4 scan 'tiles' are collected every second.
- ✓ Each tile measures 300 x 300 millimetres and contains up to 1 million points.
- ✓ Reference markers are not required, reducing set-up time and eliminating the need to clean the part after scanning.
- ✓ Scan in 10 minutes an area that would require an hour of work with even a high-end laser scanner.
- ✓ Easily removed from the arm for better usability while probing.
- ✓ Remountable in seconds with no time-wasting realignment.
- ✓ Full-speed scanning performance over WiFi or a single cable.
- ✓ Complete System Scanning Certification defined according to ISO 10360-8 Annex D.

Probing goes portable.

The Absolute Arm is the absolute standard when it comes to reliable high-accuracy touch probe measurement, delivering market-leading accuracy in a portable form factor.

Every arm is supplied with three pre-calibrated touch probes, so measurement can begin immediately. The established TESA kinematic joint for repeatable probe mounting means probes can be hot-swapped quickly and easily, with no need for realignment between changes.

With some 100 probes available within the Absolute Arm accessory range, there's one that suits every measurement need. Straight probes, angled probes, trigger probes, tube probes – all are available at various lengths and tip diameters. Take a look at the comprehensive Absolute Arm Accessories Catalogue for more details.

Meet the probing specialist.

The Absolute Arm is also available in a range of dedicated 6-axis models. These probing systems are built on well-established measurement technology and intended for applications where laser scanning is less important.

The Absolute Arm 6-Axis offers the same probing functionality as the full 7-axis models while delivering improved probing accuracy to within just 8 microns. It's also fully upgradeable to entry-level laser scanning with the addition of the HP-L-8.9 Laser Scanner from the Absolute Arm accessories range, and is fully IP54 protected just like the 7-axis models.


TOOL
RELEASE
ABSOLUTEARM
GRESSEL gripos

The world's most accurate portable measuring arm, now for anywhere in the world.

Combining ultra-high accuracy with small size, the Absolute Arm Compact is designed for optimum results in tight spaces. And with its full IP54 protection rating, the Compact couldn't be better suited to measurement in machining centres where oil and metal shavings are a constant presence.

The system's integrated base and unique counter-weight balancing system allow for excellent ease-of-use, making on-machine setup simple and delivering fast measurement times. The Compact is also fully compatible with WiFi and battery-operation Control Pack options, as well as the HP-L-8.9 Laser Scanner for entry-level 3D scanning.

And on top of all this, the Absolute Arm Compact is still the world's most accurate portable measuring arm, with accuracy to within just 6 microns. It's an incredible package of advanced portable technology that represents the perfect choice for measuring small-to-medium parts with absolute accuracy.

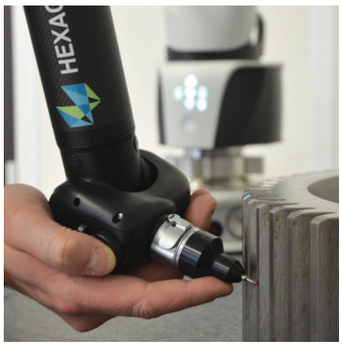
Complementing the metrology toolkit.

The ultra-high-accuracy measurement capabilities and extreme portability of the Absolute Arm Compact make it the perfect companion in CMM applications that require occasional measurements in hard-to-reach areas. That's why we offer the option to supply the Compact arm with full ISO 10360-2 certification, allowing users to maintain certification consistency while benefiting from its unique combination of portability and accuracy.

Applications

Made to measure everywhere.

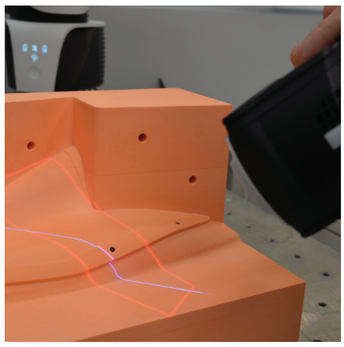
The Absolute Arm range is a single solution to measurement challenges across a wide range of industries and applications, in even the harshest measurement environments.

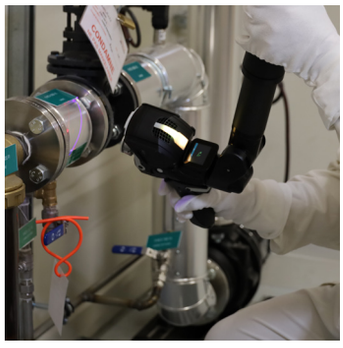


Jig and fixture

Build and inspect

Tube and wire

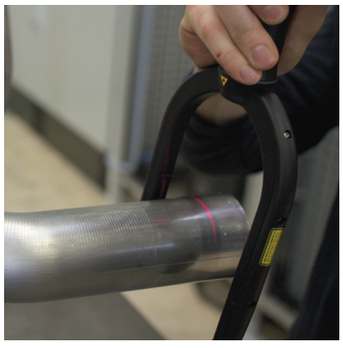


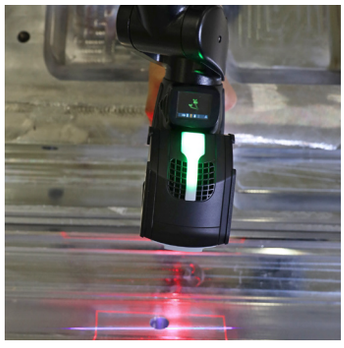


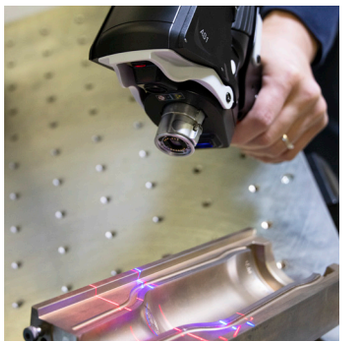
Sheet metal

Mould and die

Shop floor

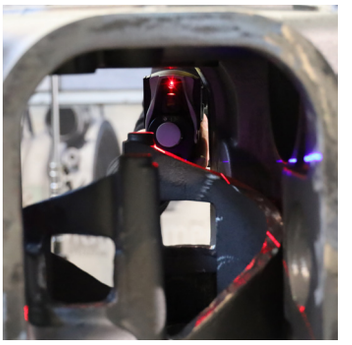






Additive manufacturing

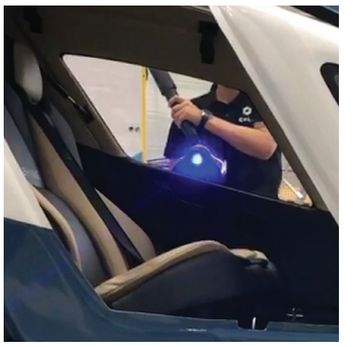
Rectangle-section tubes

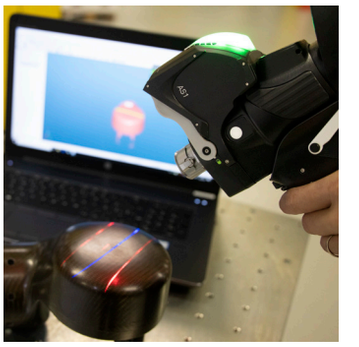


Composite inspection

In-process checks

Digitising

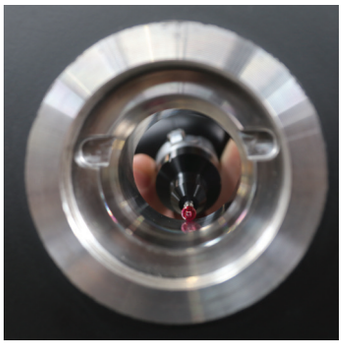


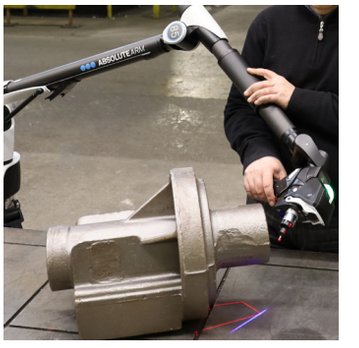


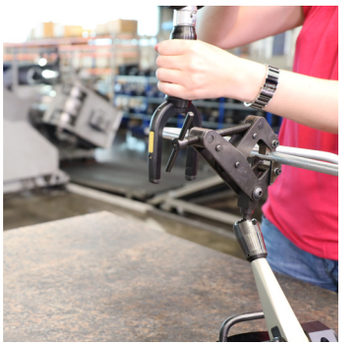
Maintenance and repair

Reverse engineering

Virtual assembly







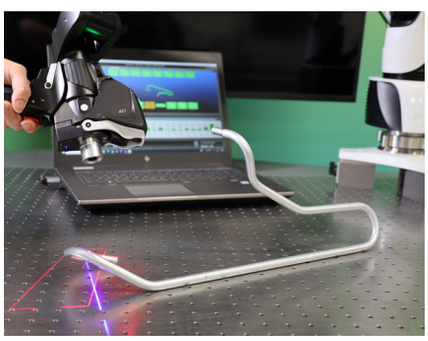
CAD-to-part

Gear measurement

On-machine verification

Special application solutions

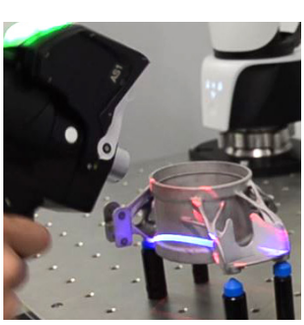
The innovative technical features and accessories available with an Absolute Arm support a range of special applications, delivering key productivity improvements in sectors where a dedicated solution can deliver great improvements.



Tube and wire

The Absolute Arm offers two dedicated tube and wire application solutions, both of which can be managed within Hexagon's dedicated tube and wire measurement software platform, BendingStudio XT. This advanced software platform can manage every aspect of the tube and wire production process, all the way to directly defining and communicating bending machine correction data.

Any 7-Axis Absolute Arm fitted with a laser scanner such as the Absolute Scanner AS1 can be used to deliver incredibly fast and accurate 3D data for even complex and flexible tubes within BendingStudio XT. Another tube inspection option is the non-contact infrared tube probes that can be used to quickly create 3D CAD data by collecting straight and in-bend gemoetry data. Each solution is designed to significantly reduce the production-correction loop within the bent part manufacturing process and deliver incredible productivity benefits.



Additive manufacturing

Very high density scan data has a vital role to play in the emerging field of additive manufacturing, allowing even small physical details to be captured so the final 3D dataset is more complete and (in the case of metal printing) can be compensated with greater accuracy.

Reverse engineering

Complete part data at sub-millimetre accuracy is key for high-quality reverse engineering – something that can be delivered quickly and reliably by an Absolute Arm scanner, particularly in combination with Hexagon's dedicated reverse enginnering software REcreate.

Gears

Working with the QUINDOS software platform, the Absolute Arm Gear Measurement System offers fast and simple 3D measurement for gear measurement applications that have previously required complex metrology devices.

On-machine verification

With the small size and integrated base of the Absolute Arm Compact, measurements can be made directly on a CNC milling machine, improving productivity by tightening the feedback loop of inspection and production adjustment to a single user at a single station.

Series, sizes and setup

The Absolute Arm is available in 3 different series, each representing a different level of accuracy. Users can then choose from 7 different arm sizes, offering measurement volumes between 1.2 and 4.5 metres in diameter. Every one of those combinations of series and size is then available in both 7-axis or 6-axis models for scanning or probing, depending on the users measurement priorities.

87 series

Ultimate solution for portable high-accuracy measurement.

85 series

Perfect balance between value for money and accurate measurement.

83 series

Entry-level measurement accuracy.

	83	85	87
1.2 m	✓	✓	
2.0 m	✓	✓	
2.5 m	✓	✓	✓
3.0 m	✓	✓	✓
3.5 m	✓	✓	✓
4.0 m	✓	✓	✓
4.5 m	✓	✓	✓

Available measurement volumes for each Absolute Arm series.

Volume versus reach

Some manufacturers quote their arm's maximum reach as its measurement volume. With the Absolute Arm, the quoted measurement volume represents the largest area within which reliable accurate measurement is feasible, rather than just the maximum possible horizontal extension of the arm.

Measurement volume

Maximum reach

Protecting absolute accuracy

In a first for the world of portable measuring arms, all Absolute Arm systems are now fully IP54-rated, guaranteeing protection against dust and moisture.

The Absolute Scanner AS1 also offers IP54-level protection, for high-productivity scanning jobs that must be carried out in challenging environments such as workshops and foundries.

5 = Dust protection
Entry of dust is not entirely prevented, but it must not enter in a quantity that is sufficient to interfere with satisfactory use of the equipment.

4 = Splashing water
Water splashing against the enclosure from any direction will have no harmful effect.

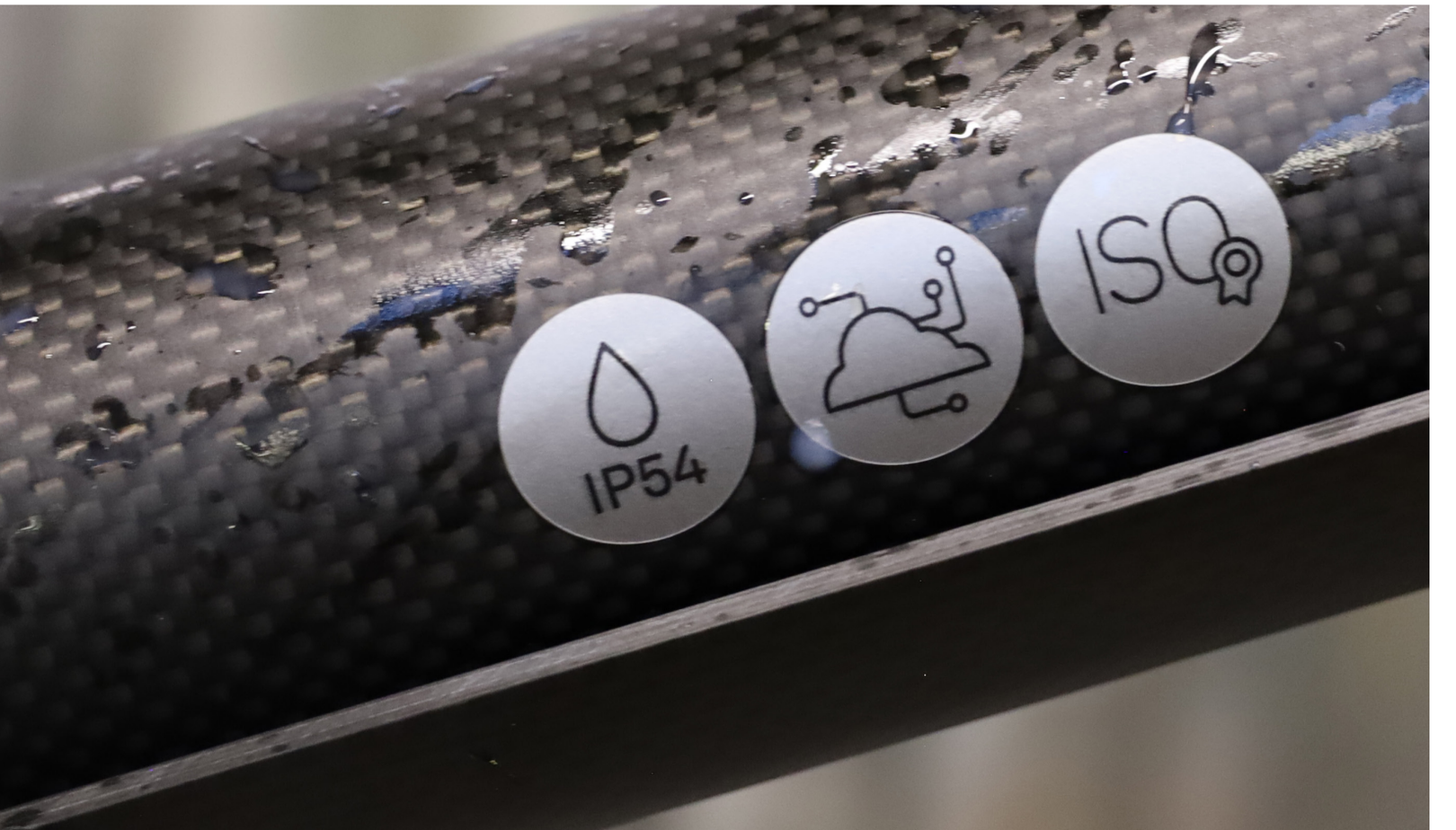
What is an IP rating?

Defined in IEC 60529, IP, or Ingress Protection, Codes classify the protection afforded by casings and enclosures in an attempt to improve on vague marketing terms like 'waterproof'. Every IP Code is made up of two digits, each of which signifies the level of a different type of protection.

Solid particle protection
The first digit indicates protection against access to hazardous parts and harmful ingress of solid materials such as dust.

Liquid ingress protection
The second digit indicates protection against the harmful ingress of liquids, principally water.

The IP54 rating of the Absolute Arm system and a scanner like the Absolute Scanner AS1 make it an ideal solution for measurement in areas where moisture and dust are unavoidable. Combined with the Absolute Arm's market-leading guaranteed operability in environmental temperatures up to 45°C, there's no better measuring system for harsh environments.



Certifying absolute accuracy

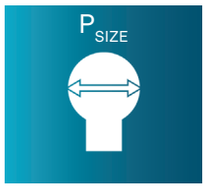
All Absolute Arm systems are produced and delivered in line with fully traceable and internationally recognised certifications, giving users complete confidence in the reliability of their measurements.

ISO 10360-12

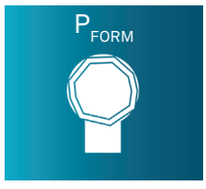
As standard, probing accuracy certification is in line with the rigorous ISO 10360-12 test for defining the probing accuracy of portable measuring arms.

This is an extremely demanding and internationally recognised standard that requires certified length and sphere artefacts be measured multiple times in different positions within the arm measurement volume with a touch probe. The results of these measurements provide four accuracy results that together represent the arm's overall accuracy for contact measurement.

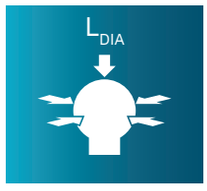
The E_{UNI} value is the maximum permissible error for unidirectional length measurements. It therefore most closely reflects most measurement needs.



The P_{SIZE} value is the maximum permissible error for measuring the diameter of a sphere. It therefore signifies the accuracy of feature measurements.



The P_{FORM} value is the maximum permissible error for the form of a sphere. This is a value that defines the dispersion accuracy of the arm.



The L_{DIA} value is the maximum permissible error for the articulation location. It therefore represents the repeatability of the arm.

ISO 10360-8

A full system scanning accuracy certification in line with the ISO 10360-8 Annex D standard is supplied with every Absolute Arm scanning system. This represents the global accuracy of the arm and scanner together. The test involves measuring a certified sphere artefact with five different arm articulations, in different locations throughout the arm measurement volume. A certified sphere artefact is supplied with every Absolute Arm scanning system.

ISO 10360-2

The Absolute Arm Compact is available with optional ISO 10360-2 certification. This is a CMM-type certification that quotes the arm accuracy according to a variable 'L', where 'L' is equal to the length of measurement that is being performed. A higher L-value denotes a larger measurement distance, such that ISO-certified accuracy increases with lower L-values. This is a useful option for users who plan to use their Absolute Arm Compact in conjunction with a bridge, gantry, vision or horizontal-arm CMM.

ISO 17025

Every Absolute Arm is manufactured in a production environment certified to ISO 17025.

Patent notice

Products described in this brochure may be covered by one or more of the following U.S. patents:
7779548 | 8122610 | 7908757 | 8099877 | 10,302,745 B2 | 10,323,927 B2 | 2021122059 | 2021123719 | 2021122057 | 2021122060 | 2021122058 | and other U.S. and foreign patents pending.

Making the most of portable measuring arm technology

Driven by a truly end-to-end approach to innovation, Hexagon's wide range of accessories for portable measurement arms reaches from added functionality to improved productivity while covering every need in between.

Mounting the Absolute Arm

A selection of bases, tripods and stands is compatible with every Absolute Arm, including a convenient vacuum mount, all attachable through the specially designed Mounting Ring.

Large-volume measurement

Volume expansion accessories allow the Absolute Arm to measure parts and objects beyond its standard reach.

Leap Frog Kit

Extended measurement can be achieved with a Leap Frog Kit that allows the arm to measure from different stations.

GridLOK

For more demanding applications, the GridLOK system creates an expanded measurement arena within which the arm can be repositioned anywhere with no undue loss of accuracy.

Visit our shop

Buy Absolute Arm accessories online | shop.hexagonmi.com

Hexagon's Manufacturing Intelligence online shop offers a streamlined search, order and delivery service for a wide range of accessories and spare parts in many countries worldwide.

- Quickly find the right inspection solution with the shop's state-of-the-art search function: filter by price, radius, thread, and other criteria to pinpoint the exact product required
- Fast UPS dispatch
- Easy bulk purchase via CSV file uploads
- Convenient payment – on account or by credit card

Whether buying in bulk or single items, shop.hexagonmi.com takes the time and stress out of securing measuring equipment.

Portable workstations

Hexagon portable base stations provide the ideal workplace for your portable measuring arm. Available in a number of sizes and configurations, they have a rigid design and are fully rust-proofed. Stable, lockable wheels and a convenient handle allows for easy movement and secure stowing.

HxGN SFx *ready*

HxGN SFx | Asset Management

Check Absolute Arm health and performance in real time from anywhere in the world.

As users increasingly venture further away from base with their Absolute Arm systems, it's natural to want to know how devices are performing in the field. The HxGN SFx | Asset Management solution delivers exactly that, with its simple, accurate and highly reliable remote monitoring and analysis functionality.

Whether on a single site or distributed across multiple locations around the world, measurement devices such as portable measuring arms, laser trackers and CMMs can all be monitored in real time through this single system to allow for better-informed decision making.

- Monitor and manage device status, usage and performance, to stay on top of project progress and indentify opportunities for productivity enhancement.
- Securely access information from anywhere in real time, so that more than just the on-site users know what's going on.
- Receive customisable critical event notifications – never miss something that matters, never get bothered by something that doesn't.
- Easily locate individual or fleets of portable assets with GPS tracking, so every high-investment measurement device is always accounted for.

The SFx Asset Management solution is fully compatible with all Absolute Arm models, each of which now includes a two-year subscription to HxGN SFx | Asset Management PRO on purchase and the option to include a GPS location add-on for every device.

Major metrology software

Driving the tools of high-end inspection.

Hexagon is the largest software developer in the metrology industry and offers a wide range of individually customisable software packages. Hardware solutions from Hexagon support this with a foundation of cross-platform compatibility, designed for perfect functionality with both the many advanced platforms developed in-house and the best third-party programs on the market.

Inspire

PC-DMIS

SpatialAnalyzer

RECreate

BendingStudio XT

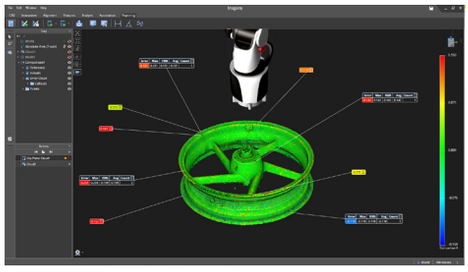
PolyWorks®

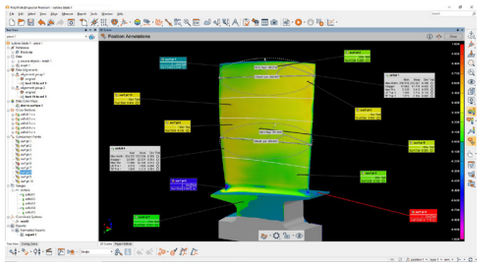
Metrolog X4

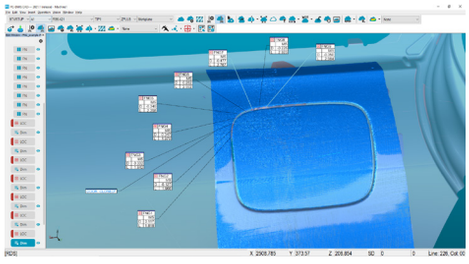
Verisurf

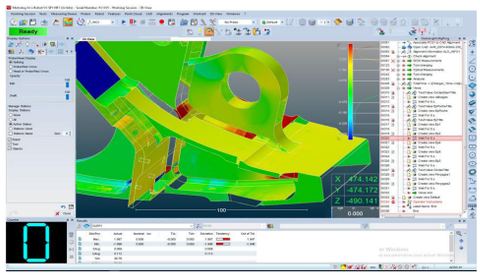
3D Systems (Geomagic)

and many more









Hexagon

Third-party

World-class products to rely on

Drawing on decades of research and development experience, portable measuring arm technology from Hexagon's Manufacturing Intelligence division is built on a long history of outperforming technological innovation.

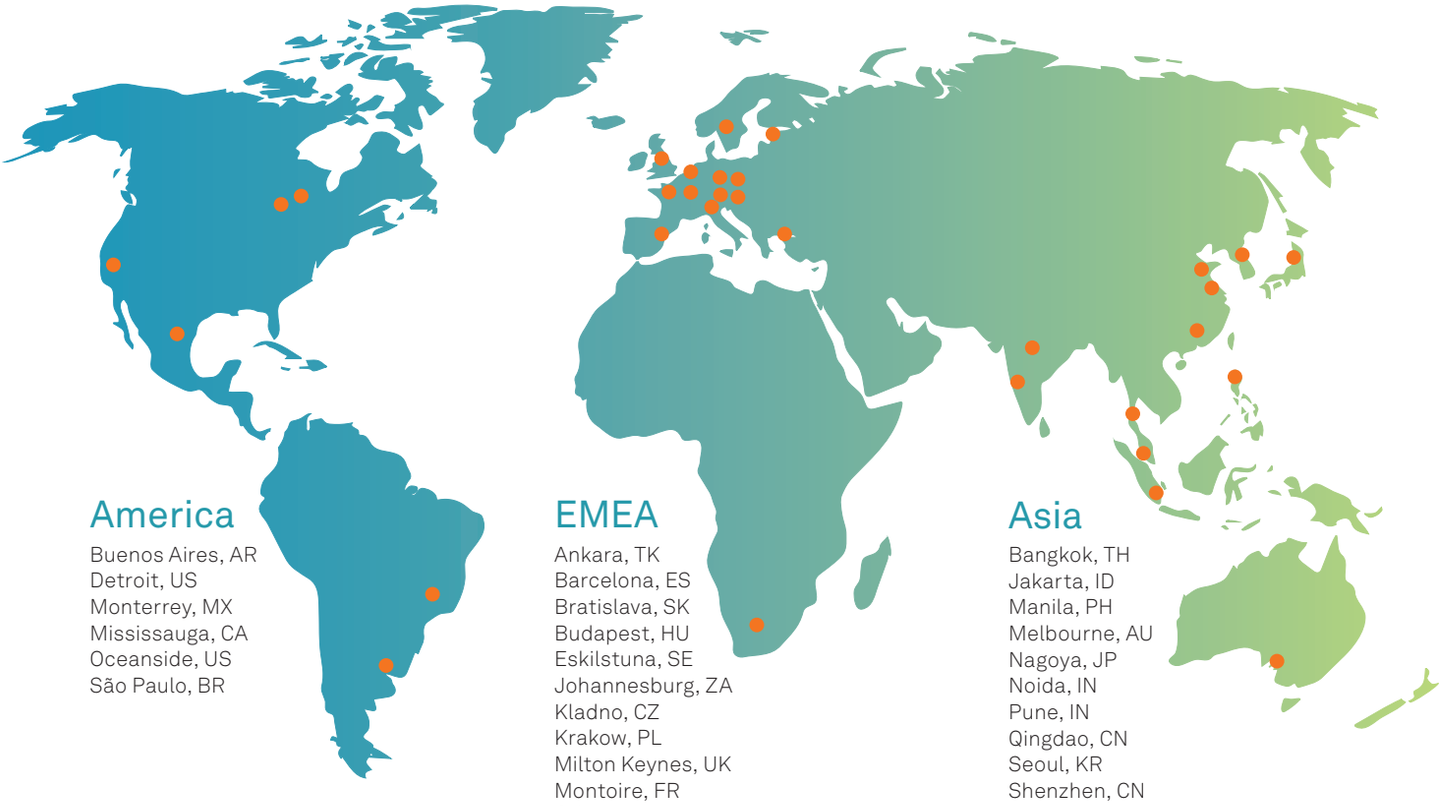
Deriving quality from experience to drive productivity is what keeps Hexagon in front and able to deliver first-class solutions for industries around the world.

Along with the assurance of ten years of serviceability, owners of Hexagon portable measuring arm systems 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.

There are now 34 Absolute Arm service centres worldwide, all of which are able to offer full ISO certification facilities along with a complete array of other support and maintenance services.



America

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Detroit, US
Monterrey, MX
Mississauga, CA
Oceanside, US
São Paulo, BR

EMEA

Ankara, TK
Barcelona, ES
Bratislava, SK
Budapest, HU
Eskilstuna, SE
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Krakow, PL
Milton Keynes, UK
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Noida, IN
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Seoul, KR
Shenzhen, CN
Singapore, SIN
Suzhou, CN

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.

Customer Care Packages

Absolute Arm owners have the opportunity to invest in a Customer Care Package – a standardised after-sale service package designed to ensure equipment remains in top condition and can be relied upon for accurate measurement results throughout a lifetime of use.

Customer Care Packages include a selection of the following benefits, depending on the tier chosen.

	Platinum	Gold	Silver	Bronze
Planned annual service	✓	✓	✓	✓
Customer hardware support	✓	✓	✓	✓
Annual maintenance and recertification	✓	✓	✓	
Remote connected assistance	✓	✓		
Repair parts and labour	✓			
Customised local benefits	✓	✓	✓	✓

For complete details of the benefits of each level of Customer Care Package, please contact a local Hexagon representative.

Absolute Arm specifications

Absolute Arm 7-Axis accuracy and size specifications

	Model	E_{UNI} [1]	P_{SIZE} [2]	L_{DIA} [3]	P_{FORM} [4]	AS1 SSA[5]	RS5 SSA[5]	RS-SQUARED SSA[5]	Weight	Max. reach
83 series	8320-7	0.043 mm	0.016 mm	0.054 mm	0.033 mm	0.059 mm	0.062 mm	NA	8.8 kg	2.48 m
	8325-7	0.048 mm	0.023 mm	0.060 mm	0.043 mm	0.065 mm	0.068 mm	0.164 mm	9.1 kg	2.98 m
	8330-7	0.078 mm	0.034 mm	0.090 mm	0.058 mm	0.082 mm	0.092 mm	0.204 mm	9.4 kg	3.48 m
	8335-7	0.092 mm	0.042 mm	0.115 mm	0.067 mm	0.099 mm	0.105 mm	0.242 mm	9.7 kg	3.98 m
	8340-7	0.114 mm	0.051 mm	0.140 mm	0.084 mm	0.118 mm	0.122 mm	0.283 mm	10.0 kg	4.48 m
	8345-7	0.158 mm	0.078 mm	0.168 mm	0.106 mm	0.163 mm	0.172 mm	0.338 mm	10.3 kg	4.98 m
85 series	8520-7	0.029 mm	0.010 mm	0.038 mm	0.021 mm	0.041 mm	0.045 mm	NA	9.0 kg	2.48 m
	8525-7	0.031 mm	0.012 mm	0.048 mm	0.025 mm	0.047 mm	0.048 mm	0.138 mm	9.3 kg	2.98 m
	8530-7	0.057 mm	0.020 mm	0.083 mm	0.038 mm	0.064 mm	0.066 mm	0.168 mm	9.6 kg	3.48 m
	8535-7	0.069 mm	0.024 mm	0.099 mm	0.045 mm	0.078 mm	0.080 mm	0.196 mm	9.9 kg	3.98 m
	8540-7	0.084 mm	0.030 mm	0.120 mm	0.050 mm	0.089 mm	0.091 mm	0.228 mm	10.2 kg	4.48 m
	8545-7	0.113 mm	0.048 mm	0.140 mm	0.065 mm	0.141 mm	0.148 mm	0.271 mm	10.5 kg	4.98 m
87 series	8725-7	0.029 mm	0.011 mm	0.044 mm	0.023 mm	0.043 mm	0.044 mm	0.123 mm	9.3 kg	2.98 m
	8730-7	0.053 mm	0.018 mm	0.076 mm	0.035 mm	0.056 mm	0.058 mm	0.148 mm	9.6 kg	3.48 m
	8735-7	0.064 mm	0.022 mm	0.092 mm	0.041 mm	0.068 mm	0.071 mm	0.173 mm	9.9 kg	3.98 m
	8740-7	0.078 mm	0.028 mm	0.110 mm	0.046 mm	0.080 mm	0.082 mm	0.198 mm	10.2 kg	4.48 m
	8745-7	0.104 mm	0.044 mm	0.125 mm	0.060 mm	0.121 mm	0.127 mm	0.222 mm	10.5 kg	4.98 m

3D scanner specifications

	AS1	RS5	RS-SQUARED	HP-L-8.9
Scanner type	Blue laser line scanner	Red laser line scanner	Structured light scanner	Red laser line scanner
Accuracy	0.016 mm ($P_{Form.Sph.1x25:ODS}$)[9]	0.028 mm (2σ)	0.06 mm (2σ)	0.04 mm (2σ)
Point acquisition rate	up to 1.2 million points/s	752 000 points/s	4 million points/s (grid of raw points)	45 000 points/s
Points per frame	max. 4000	max. 7520	1 million	750
Frame rate	max. 300 Hz	max. 100 Hz	max. 4 Hz	60 Hz
Line width (mid)	150 mm	115 mm	-	80 mm
Frame size (at mid-range)	-	-	300 mm x 300 mm	-
Standoff	165 ± 50 mm	165 ± 50 mm	300 ± 50 mm	135 ± 45 mm
Minimum point spacing	0.027 mm	0.011 mm	0.21 mm	0.08 mm
System scanning certification	yes	yes	yes	no
Laser class	2	2M	2	2
Protection rating	IP54	-	-	-
Operating temperature	5-45°C	5-40°C	5-45°C	5-40°C
Weight	0.4 kg	0.4 kg	1.4 kg	0.32 kg

Absolute Arm 6-Axis accuracy and size specifications

	Model	E_{UNI} [1]	P_{SIZE} [2]	L_{DIA} [3]	P_{FORM} [4]	Weight	Max. reach
83 series	8312-6	0.024 mm	0.010 mm	0.021 mm	0.018 mm	12.1 kg	1.49 m
	8320-6	0.040 mm	0.013 mm	0.042 mm	0.026 mm	7.8 kg	2.23 m
	8325-6	0.046 mm	0.020 mm	0.053 mm	0.038 mm	8.1 kg	2.73 m
	8330-6	0.067 mm	0.029 mm	0.071 mm	0.054 mm	8.4 kg	3.23 m
	8335-6	0.085 mm	0.038 mm	0.090 mm	0.063 mm	8.7 kg	3.73 m
	8340-6	0.100 mm	0.046 mm	0.105 mm	0.077 mm	9.0 kg	4.23 m
	8345-6	0.120 mm	0.052 mm	0.110 mm	0.086 mm	9.3 kg	4.73 m
85 series	8512-6	0.019 mm	0.006 mm	0.016 mm	0.012 mm	12.2 kg	1.49 m
	8520-6	0.023 mm	0.008 mm	0.030 mm	0.017 mm	8.0 kg	2.23 m
	8525-6	0.028 mm	0.010 mm	0.035 mm	0.020 mm	8.3 kg	2.73 m
	8530-6	0.042 mm	0.015 mm	0.053 mm	0.030 mm	8.6 kg	3.23 m
	8535-6	0.055 mm	0.020 mm	0.069 mm	0.040 mm	8.9 kg	3.73 m
	8540-6	0.067 mm	0.024 mm	0.085 mm	0.045 mm	9.2 kg	4.23 m
	8545-6	0.080 mm	0.028 mm	0.102 mm	0.050 mm	9.5 kg	4.73 m
87 series	8725-6	0.026 mm	0.009 mm	0.032 mm	0.018 mm	8.3 kg	2.73 m
	8730-6	0.039 mm	0.014 mm	0.048 mm	0.028 mm	8.6 kg	3.23 m
	8735-6	0.052 mm	0.018 mm	0.064 mm	0.037 mm	8.9 kg	3.73 m
	8740-6	0.063 mm	0.022 mm	0.079 mm	0.041 mm	9.2 kg	4.23 m
	8745-6	0.074 mm	0.026 mm	0.094 mm	0.046 mm	9.5 kg	4.73 m

Absolute Arm Compact 10360-2 accuracy specifications

Model	MPE_p [7]	MPE_e [8]
8312	0.008 mm	5+L/40 <0.018 mm
8512	0.006 mm	5+L/65 <0.015 mm

Absolute Arm technical specifications

Operating temperature	5 to +45°C
Storage temperature	-30 to +70°C
Operational elevation	up to 2000 m
Relative humidity	10 to 90% non-condensing
Protection rating	IP54
Marks of conformity	CE – FCC – IC
Power requirement	110-240 V

[1] E_{UNI} Maximum permissible longitudinal error of measurement – according to ISO 10360-12:2016
[2] P_{SIZE} Maximum permissible probe deviation, size – according to ISO 10360-12:2016
[3] L_{DIA} Maximum permissible probe deviation, position – according to ISO 10360-12:2016
[4] P_{FORM} Maximum permissible probe deviation, shape – according to ISO 10360-12:2016
[5] SSA Scanning System Accuracy: L_{DIA} according to ISO 10360-8 Annex D
[6] Weight Weight without scanner
[7] MPE_p Maximum permissible error, probing – according to ISO 10360-2
[8] MPE_e Maximum permissible error, length measurement – according to ISO 10360-2
[9] $P_{FORM.Sph.1x25:ODS}$ Based on a part of the ISO-10360 standard

HEXAGON

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Manufacturing Intelligence division provides solutions that use data from design and engineering, production and metrology to make manufacturing smarter. For more information, visit hexagonmi.com.

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