



**HEXAGON**

**Absolute Arm  
Product presentation**

**February 2022**

## Hexagon Absolute Arm: Introduction



The Hexagon Absolute Arm is a Portable Co-ordinate Measurement Machine (a.k.a. 'PCMM')

It is designed to be taken *to* the part for measurement, whatever the environment.



IP54



## Hexagon Absolute Arm: Product range

- The Absolute Arm is available in 3 different configurations:
  - **Compact:** very high accuracy, small size, for measurement of small parts or in tight spaces.
  - **6 Axis:** for tactile probe measurement.
  - **7 axis:** for scanning and tactile probe measurement.
- **Compact** is available at two accuracy levels: 83 (lower) and 85 (high).
- **6 Axis** is available at three accuracy levels: 83, 85 and 87.
- **7 axis** is available at three accuracy levels: 83, 85 and 87.



# Hexagon Absolute Arm: Product range

- The Absolute Arm is available in 7 different lengths to suit your measurement needs (accuracy, portability, cost, time-to-measure and so on).
- The lengths correspond to the *diameter* of the measurement volume of each arm.



| Low-Cost (83 SERIES / Green) |           | Mid-Range (85 SERIES / Blue) |           | Highest Accuracy (87 SERIES / Chrome) |           |
|------------------------------|-----------|------------------------------|-----------|---------------------------------------|-----------|
| 83 6-axis                    | 83 7-axis | 85 6-axis                    | 85 7-axis | 87 6-axis                             | 87 7-axis |
| 1.2m (Compact)               | -         | 1.2m (Compact)               | -         | -                                     | -         |
| 2.0m                         | 2.0m      | 2.0m                         | 2.0m      | -                                     | -         |
| 2.5m                         | 2.5m      | 2.5m                         | 2.5m      | 2.5m                                  | 2.5m      |
| 3.0m                         | 3.0m      | 3.0m                         | 3.0m      | 3.0m                                  | 3.0m      |
| 3.5m                         | 3.5m      | 3.5m                         | 3.5m      | 3.5m                                  | 3.5m      |
| 4.0m                         | 4.0m      | 4.0m                         | 4.0m      | 4.0m                                  | 4.0m      |
| 4.5m                         | 4.5m      | 4.5m                         | 4.5m      | 4.5m                                  | 4.5m      |



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**Absolute Arm:  
Measurement challenges,  
features and benefits**

# Hexagon Absolute Arm: What are our customers' challenges?

**Measure in different locations**



**Challenging environments**



**Varied applications**



**Service and support**



**Time to measure**



**Accuracy**



**Challenging parts**



**Easy to use**



# Hexagon Absolute Arm: How Does it Meet Those Challenges?

## Measure in different locations

- The Absolute Arm is extremely portable. Even the heaviest weighs less than 12 kg.
- SFx Asset Management enables you to check the arm's health, even remotely.

## Challenging environments

- All Absolute Arms are certified for IP54 protection and can be used in temperatures up to 45°C
- Wi-Fi communication and batteries mean that your arm can work totally autonomously

## Varied applications

- Because our probes can be switched on the fly, you can move from tactile measurement of prismatic features to scanning freeform surfaces and even non-contact tube measurement in one measurement session.

## Service and support

- Every arm is supplied with a 24 month warranty as standard.
- SFx Asset Management allows you to see the health of your arm wherever it is.
- Hexagon has the largest global support network of any metrology supplier.

## Time to measure

- Quick set-up, stable Wi-Fi connection and no need to make any probe calibrations mean that you can go in, measure and leave in the shortest time possible. High productivity. Fast return on investment.

## Accuracy

- All Absolute Arms are supplied with certification to ISO.
- Every arm has a certified artifact so you can check its accuracy at any time.

## Challenging parts

- AS1's SHINE algorithms make laser scanning easy because 99% of part surfaces can be scanned using the default settings.

## Easy to use

- The Absolute Arm is light and has many ergonomic features to ensure that is as slack to use as possible for the operator.

## Features and Benefits: IP54 protection



### What's the feature?

- All Absolute Arms are certified to the IP54 standard, for protection against dust and fluids.



### What's the benefit to you?

- Greater confidence and security if you're measuring in areas that are dirty and / or wet:
  - CNC Machining centres
  - Water jets
  - Composite parts
  - Stone dust
  - Sawdust



## Features and Benefits: Ergonomics

### What's the feature?

- The Absolute Arm is designed for long periods of use (> 8hrs). Because of this, it is equipped with various ergonomic features:
  - HomeDock, to lock the wrist in position so that it's secure, when the arm is not in use.
  - Haptic Interface. Arm alerts are communicated to the user through a vibration in the wrist, so that he / she can be alerted without having to see the PC screen..
  - Zero-G Counter-balance, so that the arm feels almost weightless during measurement.
  - The 7 axis arm is equipped with a touch screen display at the wrist, so that measurement results can be seen even when the operator can't see the computer screen. Compatible with PC-DMIS and Inspire 2022.



### What's the benefit to you?

- The arm is easier to use, particularly in tough environments, when the part to be measured is difficult to access and you can't always see the computer screen.



## Features and Benefits: **Thermal stability**



### What's the feature?

- The Absolute Arm can now be used at ambient temperatures up to 45°C.

### What's the benefit to you?

- Greater confidence in your measurements if you have to measure in a hot environment (like a foundry) or a hot climate.

## Features and Benefits: Choice of probes and scanners

### What's the feature?

- The Absolute Arm is supported by a range of more than 90 different probes and scanners in many different shapes and sizes:
  - Touch probes
  - Angled touch probes
  - Touch trigger probes (for measuring flexible parts)
  - Non-contact probes (for tube and hose measurement)
  - 3 laser scanners: HPL-8.9 (for 6 axis arms), RS5 and AS1 for (7 axis arms).
  - Area scanners: RS-SQUARED.

### What's the benefit to you?

- You can always find the right probe for your measurement task.
- A new probe (or scanner) can be retro-fitted to any arm at any time. All that's needed is a probe alignment, and you're ready to go.



## Features and Benefits: Repeatable probe mounting

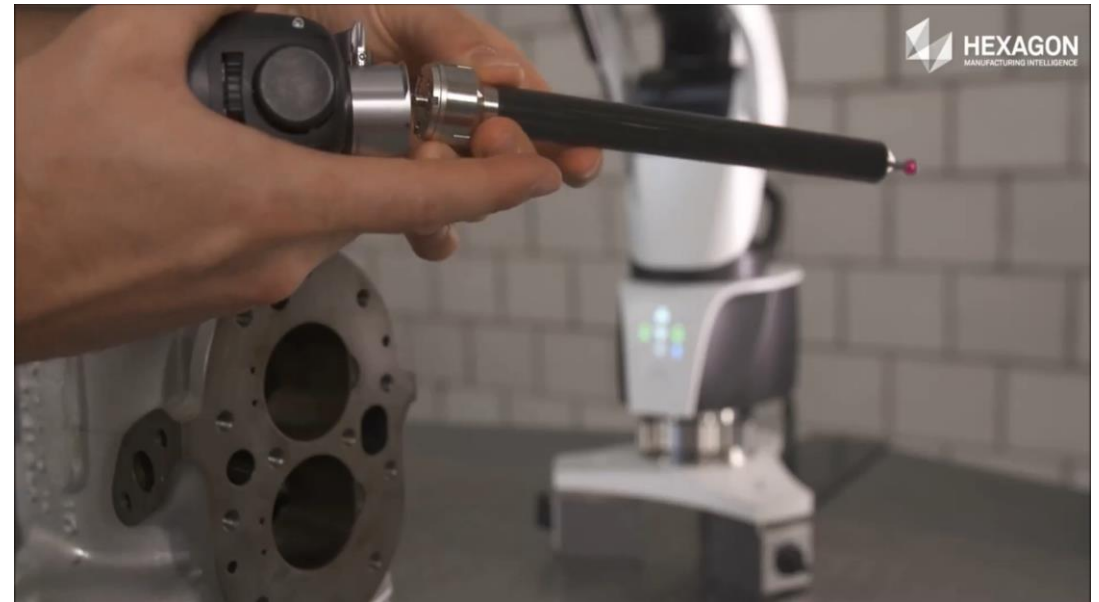
### What's the feature?

- All Absolute Arms are equipped with a TKJ (TESA Kinematic Joint) on the wrist. This is the mounting used to attach probes or scanners onto the arm.
- The mounting is totally repeatable, so that probes can be swapped without stopping your work to make a calibration.
- Each probe (or scanner) is automatically identified by the arm, as soon as it's mounted.



### What's the benefit to you?

- Less time is lost when you have to swap probes, because you don't have to stop work to calibrate the one you just mounted.
- Versatility. You can swap probes on the fly, according to what you need to measure on the part.



## Features and Benefits: **Modular wrist**

### What's the feature?

- The 7 axis arm has a wrist which is totally modular. The pistol grip and scanner can be removed to ensure that the size of the wrist is reduced to the minimum.



- 3 different-sized pistol grips are supplied with every 7 axis arm, so you can fit the one most comfortable for your operators.

### What's the benefit to you?

- Measuring with a smaller wrist is vital if you're measuring in tight spaces.



## Features and Benefits: **Wi-Fi communication**

### What's the feature?

- Thanks to the Wireless Control Pack (CP-W), all Absolute Arms are able to communicate with the laptop through a Wi-Fi connection.
- The Wi-Fi connection supports our scanners, even running at full data rate, with no drop in performance or scan data quality.
- The Wireless Control Pack is also supplied with two rechargeable batteries. These can be 'hot swapped' during measurement, so one can be removed for charging while the other powers the arm and scanner. Battery autonomy is estimated at around 4hrs.

### What's the benefit to you?

- Less time to set up the arm in any location.
- No messy cables on the floor.
- Total freedom from extension chords and wall-mounted outlets.
- Hot-swappable batteries mean that you can work measure Wi-Fi indefinitely.



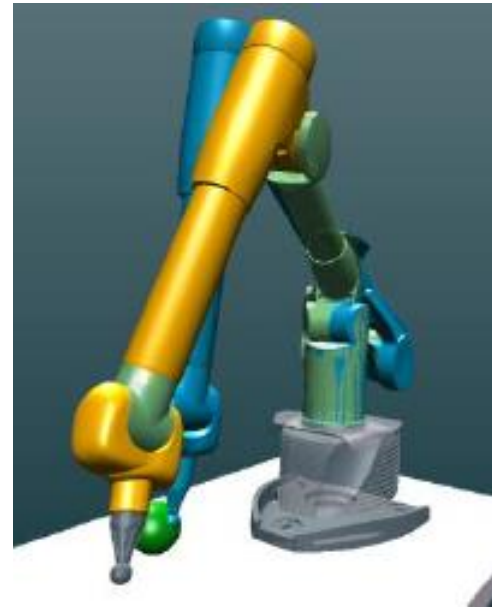
## Features and Benefits: Accuracy artefacts

### What's the feature?

- All Absolute Arms are supplied with accuracy certifications to the ISO 10360-12 standard. To ensure that you can check that accuracy, all arms are equipped with at least one independently certified accuracy artefact:
  - All 83 series arms are supplied with a certified sphere artefact.
  - 85 and 87 series arms are supplied with a certified sphere and verification bar.
- Our RDS software (supplied with every arm) is also equipped with scripts, to guide you through an accuracy check step-by-step, so that you can even perform an ISO certification, even with limited experience.

### What's the benefit to you?

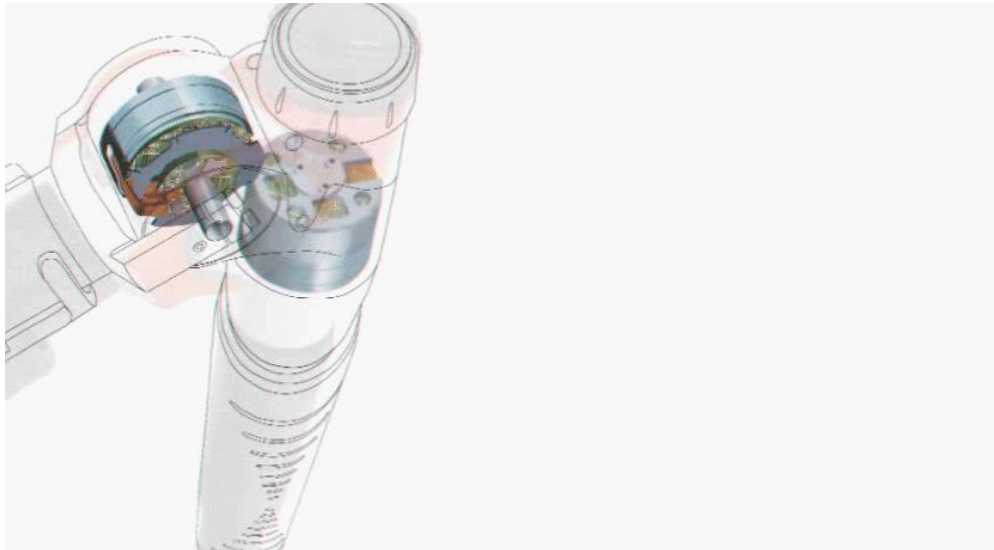
- You can check the accuracy of your arm at any time anywhere, so you have full confidence in its performance.
- Lower cost of ownership. *You* decide when the arm should return for a calibration, not us.



## Features and Benefits: **Absolute encoders**

### What's the feature?

- All Absolute Arms are equipped with patented **Absolute Encoders**. This means that their rotational position is stored, even when the arm is powered off. This means that the axes of the arms do not need to be 'referenced' when it is powered on.



### What's the benefit to you?

- Measuring in tight spaces (like inside a car, or under a CNC machine) is easier, because the axes don't need to be referenced before the arm is used.
- Lower risk of hitting the arm against the measurement area.





## Features and Benefits: SHINE

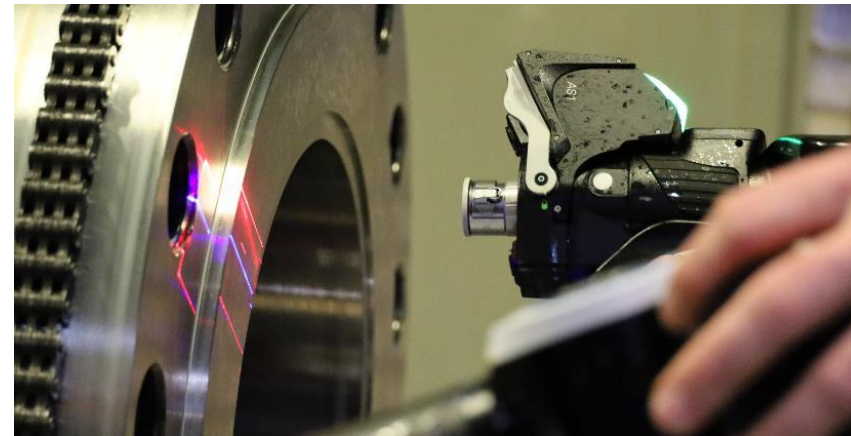
### What's the feature?

- Our AS1 scanner is equipped with SHINE (Systematic High Intelligence Noise Definition), a set of optical algorithms that enables you to scan almost any surface, using only default settings.



### What's the benefit to you?

- Time saved:
  - No need to check that your scanner is using the correct settings. The scan is right the first time.
  - You can scan parts of different colours and levels of reflectivity in a single pass, without any change to the scanner settings.
- Less training.
- Less operator variability.





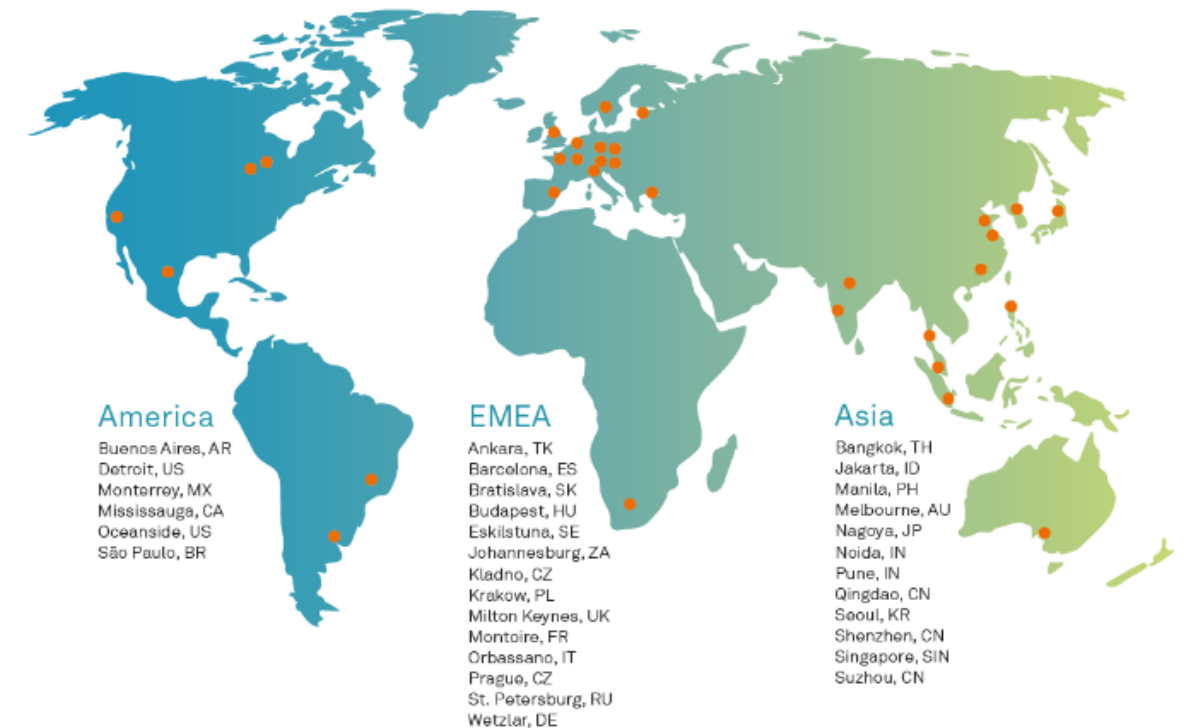
## Features and Benefits: **Warranty and service**

### What's the feature?

- All Absolute Arms are delivered with a 2 year warranty **as standard**.
- We offer our SFx Asset Management tool for free with every arm, so that you can check the state (and GPS location of your arm, if desired) of your arm remotely.
- Our network of Service Centres is the largest of any metrology supplier, with more than 30 locations worldwide.

### What's the benefit to you?

- Lower cost of ownership.
- Greater confidence, knowing the health of your arm and its performance, even remotely.



## Hexagon Absolute Arm: Summary

- The Hexagon Absolute Arm is the most robust portable measuring arm on the market, thanks to its portability, wide temperature range and IP54 certification.
- It offers un-paralleled measurement versatility thanks to a massive choice of probes and scanners.
- It offers low cost of ownership, thanks to the 24 month warranty, checking artefacts, Sfx Asset Management and world's largest service network.



IP54



**Thank you**