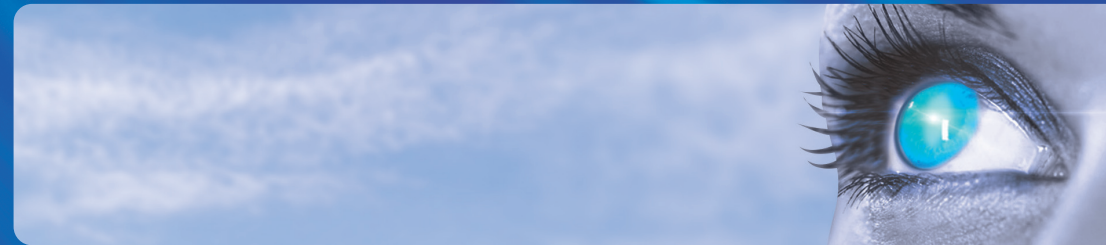


Manchester Metrology

Sub-Contract Measurement Services





Manchester Metrology Ltd

Manchester Metrology Ltd is a UK leading sub-contract specialist in the inspection of engineered components. The company was established in 2008 by Paul Bulman. Quality is a vital part of the work ethos at Manchester Metrology and our ISO9001 accreditation demonstrates our commitment to quality management.

Our team of experienced engineers can provide accurate inspection to fine tolerances at a high standard, paying specific attention to detail in order to meet the needs of the most demanding industries. We believe that our dedicated workforce is what sets us apart from competitors, ensuring each client is met with the same professional, positive attitude and provided with practical advice when required.

The team is trained and experienced in working with Laser Trackers, Portable Measurement Arms, CMM's and Laser Scanners measuring up to 180m and accuracies from 0.0017mm, meaning we have measurement devices to suit all of our customer requirements. We also provide both off-site and on-site training for all known portable metrology software to companies across the UK, from beginner to refresher courses.

Key Contacts

Managing Director:	Paul Bulman
General Manager:	Steven Richardson
Accounts Manager:	Linda Bulman
Engineering Manager:	Simon Jack



Manchester Metrology

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PROBES & EXTENSION KITS



MM-P-001



MM-P-002



MM-P-003



MM-P-004

2MM STANDARD ARM/GAGE PROBE

2mm probe for New Generation Arm/Gage

MM-P-001

3MM STANDARD ARM/GAGE PROBE

3mm probe for New Generation Arm/Gage

MM-P-002

6MM STANDARD ARM/GAGE PROBE

6mm probe for New Generation Arm/Gage

MM-P-003

STANDARD ARM/GAGE POINT PROBE

Point probe for use with the New Generation Arm/Gage

MM-P-004

PROBES & EXTENSION KITS

3MM OLD GENERATION ARM/GAGE PROBE

For use with the Old Generation Arm and Probe Extension Kits

MM-P-005

6MM OLD GENERATION ARM/GAGE PROBE

For use with the Old Generation Arm and Probe Extension Kits

MM-P-006

OLD GENERATION ARM/GAGE POINT PROBE

For use with the Old Generation Arm and Probe Extension Kits

MM-P-007

NEW GENERATION TO OLD GENERATION CONVERTER

To convert the New Generation Arm to fit the Old, Gold, Silver or Bronze Probes

MM-P-008



MM-P-005



MM-P-006



MM-P-007



MM-P-008

PROBES & EXTENSION KITS



MM-P-009



MM-P-010



MM-P-011



MM-P-012



MM-P-013



MM-P-014

Special probes available on request



MM-P-017



MM-P-016

NEW GENERATION RETROFIT PROBE WITH 3MM AND 6MM STYLI

Convert old, broken probes to take new Styli Tips. This is a part ex service for broken probes, with a choice of 2 Styli, either 3mm or 6mm.

MM-P-009

OLD GENERATION RETROFIT PROBE WITH 3MM AND 6MM STYLI

Convert old, broken probes to take new Styli Tips. This is a part ex service for broken probes, with a choice of 2 Styli, either 3mm or 6mm.

MM-P-010

2MM RETROFIT STYLI

Replacement 2mm Styli for the Retrofit Probe

MM-P-011

3MM RETROFIT STYLI

Replacement 3mm Styli for the Retrofit Probe

MM-P-012

6MM RETROFIT STYLI

Replacement 6mm Styli for the Retrofit Probe

MM-P-013

PROBE EXTENSION KIT

Arm/Gage Probe Extension Kit for use with New and Old Generation Arms

MM-P-014

3MM QUANTUM ARM PROBE

3mm probe for use with Quantum E, Quantum M and Quantum S Arms

MM-P-016

6MM QUANTUM ARM PROBE

6mm probe for use with Quantum E, Quantum M and Quantum S Arms

MM-P-017

ARM & GAGE ACCESSORIES

ARM/GAGE BATTERY

Battery for use with the Platinum, Fusion, Quantum, Titanium & Gage

MM-A-001

ARM/GAGE BATTERY CHARGER

Battery charger for charging batteries not connected to the Arm/Gage

MM-A-002

ARM EDGE POWER SUPPLY

Power supply for use with the Edge arm only

MM-A-003

ARM/GAGE POWER SUPPLY

Power supply for use with Platinum, Fusion, Quantum, Titanium & Gage

MM-A-004

OLD GENERATION POWER SUPPLY

Power supply to be used with Gold, Silver and Bronze Arms

MM-A-013

QUANTUM ARM POWER SUPPLY

Power supply for use with Quantum E, Quantum M and Quantum S Arms

MM-A-018

QUANTUM ARM BATTERY

Arm battery for use with Quantum E, Quantum M and Quantum S Arms

MM-A-019

EDGE ARM BATTERY

Arm battery for use with Edge arm only

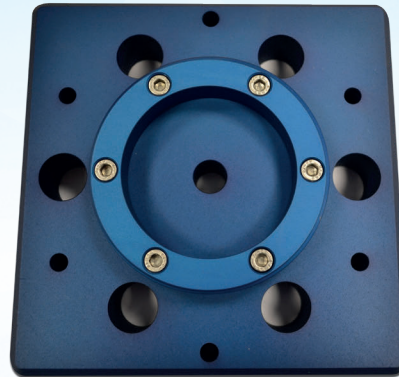
MM-A-020



ARM & GAGE ACCESSORIES



MM-A-005



MM-A-006

ARM/GAGE POWER USB

For use with the Platinum, Fusion, Quantum, Edge Arm, Prime Arm, Titanium & Gage

MM-A-005

3.5" ARM/GAGE MOUNTING RING WITH BASE

For use with the Platinum, Fusion, Quantum, Edge Arm, Prime Arm, Titanium & Gage

MM-A-006

MM-A-007



3.5" ARM/GAGE MOUNTING RING

For use with the Platinum, Fusion, Quantum, Edge Arm, Prime Arm, Titanium & Gage

MM-A-007



MM-A-008

SET OF LEAPFROG CONES

Set of leapfrog cones for adjusting arm device position for larger work

MM-A-008

EXTENSION TUBES

Our extensions increase the effective stand height from 200mm – 1000mm. Made from heavy-walled steel with a standard 3½"-8" thread on each end (one internal on the bottom to fit the stand and one external on the top to fit an instrument or adapter).

Sizes available 200mm, 400mm, 600mm and 1000mm

MM-A-014



MM-A-014

ARM & GAGE ACCESSORIES

ARM/GAGE PORTABLE TRIPOD

Portable tripod for use with the Platinum, Fusion, Quantum, Titanium & Gage

MM-A-009

LASER TRACKER TRIPOD

Portable tripod used for Laser Trackers

MM-A-009/A

HEAVY DUTY TRIPOD

Heavy duty extendable tripod for use with arms and Laser Trackers

MM-A-009/B

6" MAGNETIC MOUNT & CHUCK

Magnetic Mount for use with the Platinum, Fusion, Quantum, Titanium & Gage

MM-A-010

10" MAGNETIC MOUNT & CHUCK

Magnetic Mount for use with the Platinum, Fusion, Quantum, Titanium & Gage

MM-A-011

GRANITE ROLLING CART

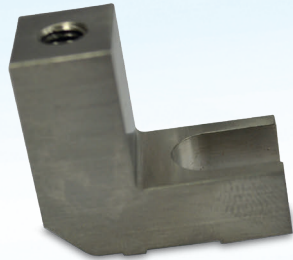
MM-A-017



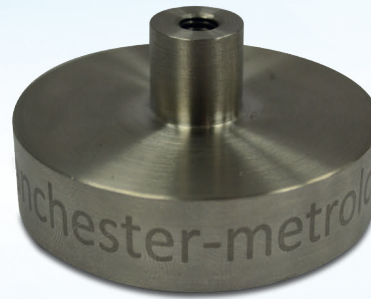
CALIBRATION ARTEFACTS



MM-C-001



MM-C-002



MM-C-003

CALIBRATION TRIVET

For calibration of New and Old Generation Arm/Gages. Please note this product is only a replacement trivet for the original base.

MM-C-001

CALIBRATION STANDARD BASE

For use with the Calibration Trivet

MM-C-002

MAGNETIC CALIBRATION BASE

For use with the Calibration Trivet

MM-C-003

VACUUM CALIBRATION BASE

For use with the Calibration Trivet

MM-C-004

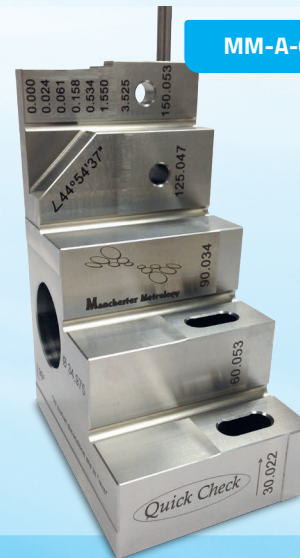
MM-C-004



MM-C-005



MM-A-012



CALIBRATION SPHERE

The UKAS calibrated sphere is the most accurate way to calibrate the Arm and Gage with the latest Arm Drivers. It also fits directly onto the Gage Rolling Cart.

MM-C-005

QUICK CHECK

Quick Check works as a master gauge to calibrate or verify various measuring instruments daily or prior to use at the workplace, including Vernier Calipers, Micrometers, Depth Micrometers, Height Gauges, Depth Gauges, Bore Gauges, Internal Calipers, External Calipers, Micrometer Heads, Dial Gauges, Bevel Protractors, Try Square, V-Block, Electronic Probes and Combination Sets. The Quick Check also comes with a UKAS calibration certificate.

MM-A-012

LASER TRACKER ACCESSORIES

1.5" DRIFT NEST

Drift Nests for use with the Laser Tracker SMRs

MM-T-001

0.5" DRIFT NEST

Drift Nests for use with the Laser Tracker SMRs

MM-T-002

1.5" DRIFT NEST (BLUE)

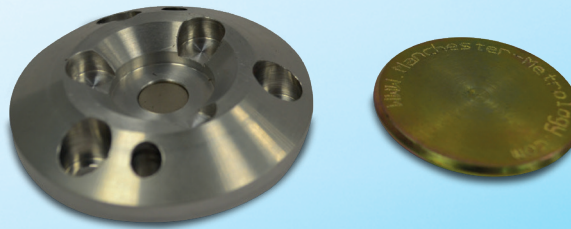
Drift Nests for use with the Laser Tracker SMRs

MM-T-001/A

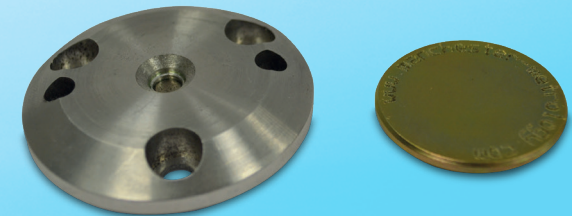
1.5" DRIFT NEST (BLUE)

Drift Nests for use with the Laser Tracker SMRs

MM-T-001/B

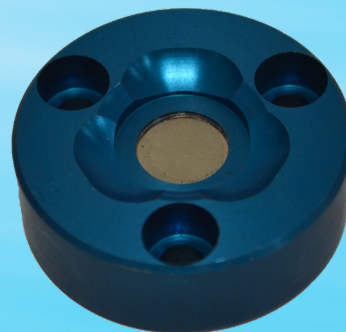


MM-T-001

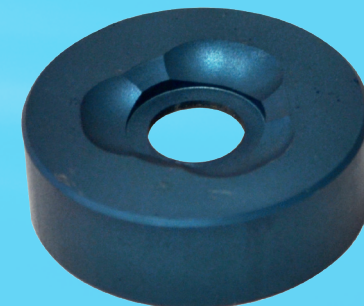


MM-T-002

MM-T-001/A



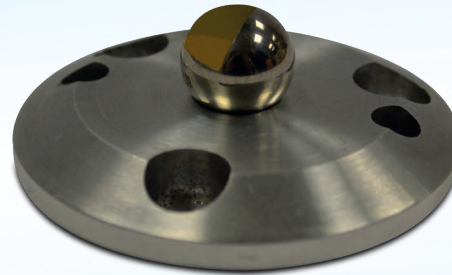
MM-T-001/B



LASER TRACKER ACCESSORIES



MM-T-003



MM-T-004

1.5" BREAKPROOF SMR

Solid steel balls with a 5 axis machined gold plated centre

MM-T-003

0.5" BREAKPROOF SMR

Solid steel balls with a 5 axis machined gold plated centre

MM-T-004

1.5" BREAK RESISTANT SMR

Steel ball with an aluminium insert

MM-T-005

0.5" BREAK RESISTANT SMR

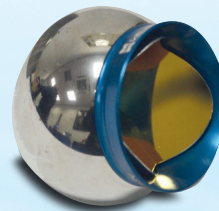
Steel ball with an aluminium insert

MM-T-006

MM-T-005



MM-T-006



LASER TRACKER ACCESSORIES

1.5" STANDARD SMR

Steel ball with a protected glass insert

MM-T-007

0.5" STANDARD SMR

Steel ball with a protected glass insert

MM-T-008

LASER TRACKER KIT

Includes:

- 10 x blue drift nests
- 10 x 0.5" drift nests
- 1 x 1.5" 8mm pin nest
- 1 x 1.5" 6mm pin nest
- 1 x 1.5" 4mm pin nest
- 1 x edge nest
- 1 x centre punch
- 1 x flat nest
- 1.5" SMR
- 0.5" SMR
- Broom handle adapter
- Jade remote

MM-T-020

LEICA TRACKER KIT

Includes:

- 10 x blue drift nests
- 10 x 0.5" drift nests
- 1 x 1.5" 8mm pin nest
- 1 x 1.5" 6mm pin nest
- 1 x 1.5" 4mm pin nest
- 1 x probe adapter 3mm
- Jade remote
- 235-5 Converter to convert a 3½"-8 standard instrument thread into a 5/8"-11 external thread to accommodate most theodolites or other instruments.
- 1 x probe adapter 6mm
- 1 x edge nest
- 1 x centre punch
- 1 x flat nest
- 0.5" SMR Handle
- Broom handle adapter

MM-T-021



MM-T-007



MM-T-008



MM-T-020



MM-T-021

LASER TRACKER ACCESSORIES



JADE REMOTE

For use with Laser Trackers

MM-T-009

BROOM HANDLE ADAPTER FOR 1.5" SMR

Adaptor for a 1.5" SMR used to give extra reach when attached to a pole

MM-T-010

1.5" PROBE ADAPTER

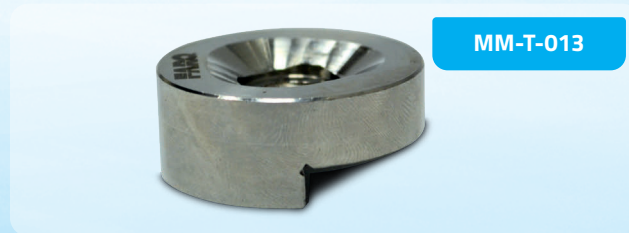
To help measure the location of a 1.5" SMR drift nest with a portable arm, the two sizes available are 3mm and 6mm

MM-T-011

1.5" PIN ADAPTER

Sizes available from 0.1" to 1" pin with 1" offset
4mm to 15mm pin with 25mm offset

MM-T-012



1.5" EDGE ADAPTER

Edge nests for measuring edges using the 1.5" SMR

MM-T-013



0.5" SMR HANDLE

4" Rubberised grip to help hold the 0.5" SMR

MM-T-016

1.5" CENTRE PUNCH

Allows you to mark out using the Laser Tracker with a centre punch

MM-T-017

LASER TRACKER ACCESSORIES

0.5" VECTOR TARGET ADAPTER (ALL DIFFERENT VARIANTS AVAILABLE)

Used to locate the centre point of the shank on the surface of the object being measured

MM-T-018

RETRO PROBE 400 STYLI 6MM

MM-T-015C

RETRO PROBE 400 STYLI 3MM

MM-T-015B

RETRO PROBE 100 STYLI 6MM

MM-T-015A

RETRO PROBE 100 STYLI 3MM

MM-T-015

RETRO PROBE 100 POINT

MM-T-015D



MM-T-015C



MM-T-018



MM-T-015A



MM-T-015B



MM-T-015



MM-T-015D

EQUIPMENT FOR SALE & HIRE

CREAFORM HANDYSCAN

The new generation of HandySCAN 3D™ handheld scanners have been optimised to meet the needs of product development and engineering professionals on the lookout for the most effective and reliable way to acquire 3D measurements of physical objects.

These metrology-grade scanners underwent a complete re-engineering, building on its core assets. They are now more portable and they are faster at delivering accurate and high resolution 3D scans while remaining overly simple to use. Yet, it is their true portability that has changed the rules and set a whole new trend in the 3D scanning market.



DESIGN

CAD Design

- 3D scan-to-CAD
- Reverse engineering (extracting design-intent)
- Packaging design

Prototyping

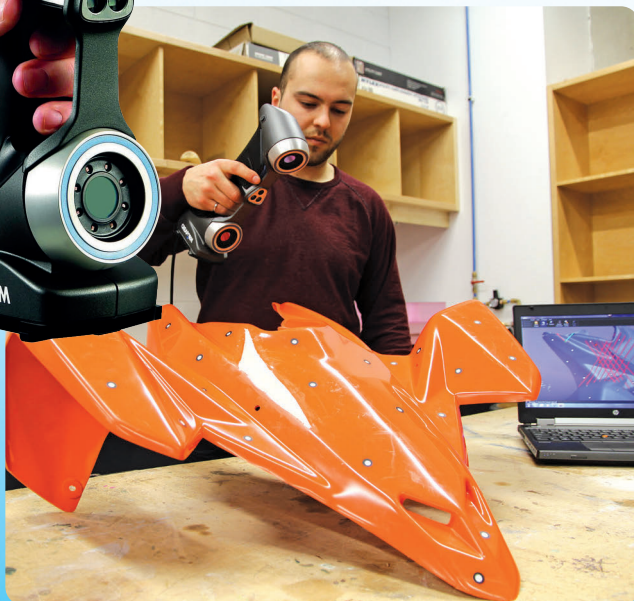
- Rapid prototyping/Manufacturing
- Integration of prototype modifications into CAD file

Testing, Simulation and Analysis

- Finite element analysis (FEA)
- Interference analysis
- Deformation, geometry analysis

*Additional target dots available to purchase

16



CONCEPT

Requirement and Specifications

- Competitive product analysis
- Measurement of product environment or connecting/surrounding parts
- Measurement of existing parts for aftermarket or custom equipment

Design

- Clay model measurement/Reverse engineering
- Models and mock-ups measurement/Reverse engineering

Concept prototyping

- Integration of prototype modifications into CAD file
- Form study, proof-of-concept prototypes
- Ergonomy prototypes



EQUIPMENT FOR SALE & HIRE

CREAFORM HANDYSCAN BLACK™ | ELITE

The NEW generation of HandySCAN 3D hand-held scanners continue to be the reference standard in professional, metrology grade portable 3D scanning. Now in its 3rd generation, the new HandySCAN BLACK™ | ELITE has been optimised to meet the needs of design, manufacturing and metrology professionals looking for the most effective and reliable way to acquire accurate 3D measurements of physical objects anywhere.

ACCURATE, RELIABLE & HIGH-RESOLUTION 3D MEASUREMENTS

The HandySCAN BLACK™ | ELITE delivers accurate, high-resolution and repeatable results, regardless of the measurement set-up quality and no matter the user experience. Featuring dynamic referencing, both the scanner and part can move during measurement and still provide an accurate and high quality scan.

Accuracy

- 0.025 mm (0.0009 in)

Volumetric accuracy

- 0.020 + 0.040 mm/m (0.0008 in + 0.0005 in/ft)

Reliable acceptance test

- Based on VDI/VDE 2634 part 3 standard
- ISO 17025 accredited laboratory
- High resolution for fine details

PORTABILITY

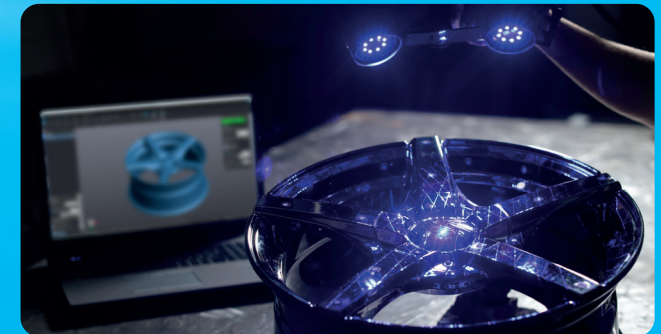
This handheld 3D scanner is a stand-alone device that does not require a tripod nor any external tracking device to operate. Fitting in a small suitcase, it can be brought anywhere and used in any environmental conditions without affecting its performance.

- **Lightweight** 0.94 kg (2.1 lb)
- **Self-positioning with dynamic referencing**
- **Fits into a suitcase**
- **Take it anywhere you need**

FASTER 3D SCANNING PROCESS

The HandySCAN BLACK™ | ELITE scanner features multiple laser crosses and an automatic mesh generation, enabling a faster workflow from the set-up to the scan and then to the file.

- **Ready-to-use files**
- **High measurement rate**
Up to 1,300,000 measurements/s
- **Large scanning area of 11 laser crosses**
- **Quick setup**
Up-and-running in less than 2 minutes





CREAFORM METRASCAN750 ELITE

- Scan any type of material, even black, multi-colored and shiny surfaces
- Greater volume of 16.6 m³ (586 ft³)
- Sturdy design for shop-floor hardware reliability
- Multi-function buttons for easier interaction with the software

Accurate

- Metrology-grade measurements: accuracy of up to 0.030 mm (0.0012 in.), resolution of up to 0.050 mm (0.0020 in.), high repeatability and traceable certificate
- Dynamic referencing: optical reflectors are used to create a reference system that is "locked" to the part, so users can move the object any way they want during the measurement process
- Volumetric accuracy of 0.064 mm (0.0025 in.)
- Accurate measurement of parts ranging from 0.2 to 10 meters (0.7 to 33 feet) in size
- No accuracy drift over time with the easy-to-perform field calibration procedure

Simple

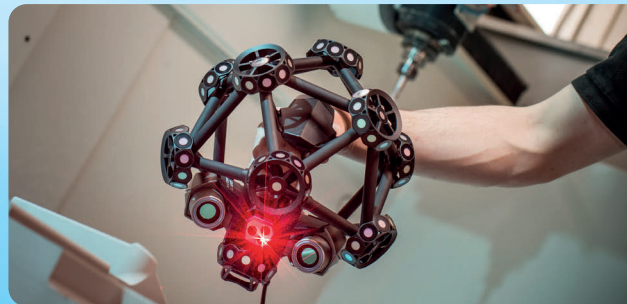
- No rigid setup required: the part and the system can be moved freely at any time during measurement
- Versatile 3D scanning: can scan any type of colour and material, even black, multi-coloured and shiny surfaces
- Greater and easily extendable measurement volume
- Automatic alignment: optical reflectors allows for repetitive inspections without re-alignment
- Multi-function buttons for easier interaction with the software
- Short learning curve and intuitive operation

Fast Speed

- Fastest 3D scanner on the market: 12 times faster than the previous generation
- Highest measurement rate among all laser scanners: 480,000 measurements/s
- Automatic mesh output: ready-to-use files, right as you complete acquisition
- Quick workflow integration: fastest path from physical objects to your design or inspection workflow

Portable

- Optimised for use on the shop floor
- Lightweight: weights under 1.38 kg (3.0 lbs)
- Portable CMM: the system can be easily brought wherever the part is
- Arm-free optical scanning system



EQUIPMENT FOR SALE & HIRE

CREAFORM C-TRACK™ | ELITE

Features and benefits

- Rate of up to 6600 3D points per second
- 6 DOF measuring (position and orientation) of a rigid set of reflectors
- Synchronous measurement of the reflector set
- Measuring volume from 9.1 to 16.6 m³ (320 to 586 ft.³)
- Real-time curve display in VXElements
- Acquisition synchronization capability through external trigger input
- Export to .csv format

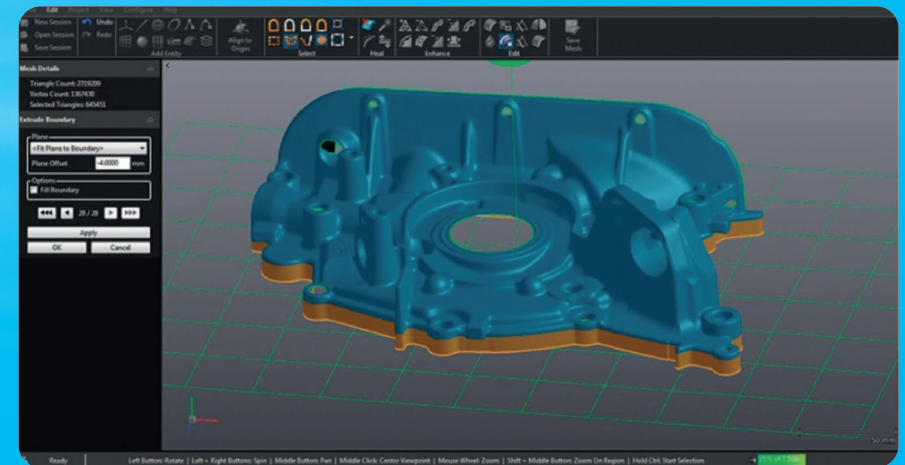


VXELEMENTS: CREAFORM'S 3D SOFTWARE PLATFORM AND APPLICATION SUITE

The C-Track comes with VXElements, which powers an entire fleet of 3D scanning and measurement technologies from Creaform. It combines all the essential tools you need for your data acquisition process into a user-friendly, simplified and sleek working environment.

Applications

- Assembly control and monitoring
- Deformation monitoring
- Movement monitoring on running parts
- Dynamic process control
- Crash test preparation (Pre-positioning)
- Onsite calibration and assessment
- Real-time course correction
- Computerised guidance of assemblies
- Motion capture



SOLUTIONIX C500

FAST AUTOMATED USER FRIENDLY 3D SCANNING

The Solutionix C500 is an industrial 3D scanner optimised for the automatic scanning of small to medium objects. Dual 5.0MP cameras allow for high resolution capture of batch components, with class leading accuracy down to a few microns.

AUTOMATIC SCANNING AND ACTIVE SYNCHRONISATION

EzScan software makes the CNC programming of parts extremely quick and simple, with a single mouse click users can scan a whole object without having to learn complex code or programming techniques. Furthermore, the software actively synchronises the model and camera views so the user can simply click on the screen to add an additional scan where data might be missing.

NEW FULL COLOUR 3D SCAN CAPTURE

The Solutionix C500 is the perfect solution for industrial inspection or reverse engineering applications due to its incredible high resolution and accuracy. The introduction of full colour capture on the C500 creates new applications where high resolution colour information is required such as CG, web based retail and 3D printing.

OPTIMUM SOLUTION FOR VARIOUS APPLICATIONS

The Solutionix C500 structured light 3D scanner acquires high-quality scan data quickly and easily; it is the best solution for versatile applications in various industries.

- Quality Inspection
- Analysis
- Reverse Engineering
- Scan to 3D Printing

ATTRIBUTES

- Blue LED Scanning Technology
- High Resolution 5.0 MP Twin Cameras
- Flexible Scan Volume and Resolution
- No Targets or Manual Alignment Required



EQUIPMENT FOR SALE & HIRE

SOLUTIONIX D500

Solutionix D500 is a professional 3D scanner system specifically designed to scan small objects with complex shapes that require fine details to be scanned with the utmost precision.

- Camera Resolution 2 x 2.0 MP
- Point spacing 0.056 mm
- 3D scanning area (FOV) 120 mm
- 3D scanning principle Phase shifting optional triangulation
- Dimension 290x290x340mm (scanner only)
- Weight 12kg (scanner only)
- Light source Blue LED
- Interface USB 3.0 B type
- Power AC 100-240V, 47-63Hz



D500

SOLUTIONIX D700

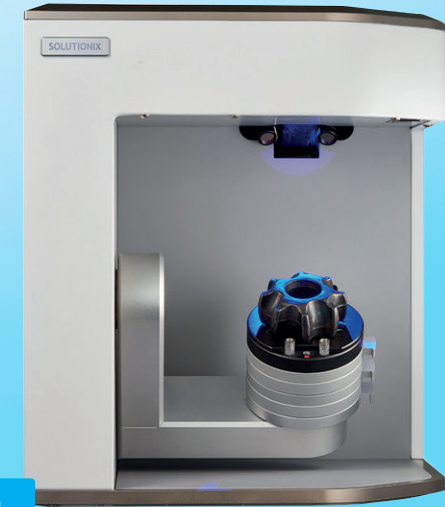
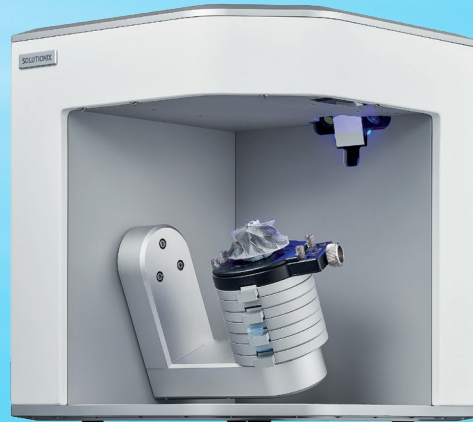
Precise. Flexible. Convenient.

Solutionix D700 is a professional 3D scanner system specifically designed to scan small objects with complex shapes that require fine details to be scanned with utmost precision.

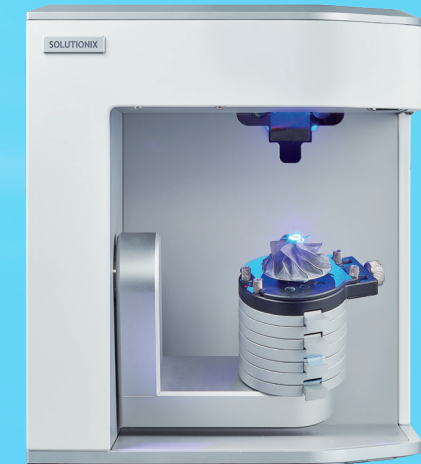
Solutionix D700 is a fully automated tool specifically designed to scan small models. The technical specifications of the D700 are calibrated to meet the high level of detail required by both industrial and non-industrial users in various applications ranging from jewellery to cultural artifacts.

Hi-Speed, Hi-Quality 3D Scanning for Small Objects

- 6.4 MP cameras, Blue LED
- Measuring area 100mm
- Point spacing 0.029mm
- Accuracy +/- 0.010mm
- Interface USB 3.0 B type



D700



EQUIPMENT FOR SALE & HIRE

GAGE

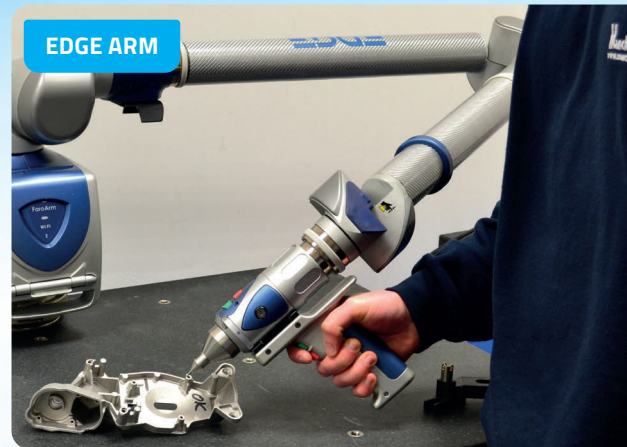
This high accuracy 4ft Gage is ideal for small components using Aberlink, Delcam, Powerinspect and Gage software.

EDGE ARM

Arm available with or without a scanner. The Arm can run alongside a range of software systems and is available in sizes 6ft-12ft.

ARMS

Models: Platinum, Quantum, Titanium, Fusion, Design Arm, Quantum M
Sizes: 4ft, 6ft, 8ft, 10ft, 12ft with either 6 or 7 axis.



EQUIPMENT FOR SALE & HIRE

REV 6 LASER LINE PROBE

Compatible with Edge Arm only.

LASER TRACKERS

Models: Vantage, Ion.

NOTES

Mounting options available including Tripods, Magnetic Mounts and Vacuum Mounts. Laptops with software are also available. No minimum hire period.

LEICA ABSOLUTE TRACKER AT401

The Leica Absolute Tracker AT401 is a portable coordinate measuring machine that allows extreme precision over ultra large distances. It is able to be powered by its own internal battery and is able to work in the most demanding environment, yet maintains the highest level of precision and the largest ever work envelope.

LEICA ABSOLUTE TRACKER AT402

Measuring where no other CMM can go, especially large structures that require highly accurate, flexible and portable metrology equipment. This surrounding is right for the Leica Absolute Tracker AT402. It redefines large scale portable measurement and opens the door for unprecedented metrology applications. A new level of portability and durability.

LEICA ABSOLUTE TRACKER AT403

New all-in-one large-volume Laser Tracker system that sets a new standard for portability, simplicity, robust construction and measurement efficiency. An all-in-one metrology solution more portable than any other on the market, the Leica Absolute Tracker AT403 is a self-contained measurement workshop inside a compact and convenient single case.



LASER LINE PROBE



LEICA AT401/2



LASER TRACKERS



LEICA AT403

EQUIPMENT FOR SALE & HIRE

EINSCAN PRO

The EinScan-Pro is your best choice for capturing real world data to convert into a digital 3D model. It can be used for consumer and commercial applications in manufacturing, engineering, design, development, testing, artwork archival, animation and even human form acquisition. The EinScan-Pro 3D scanner allows you to use physical objects to better conceptualize an idea or create a starting point for modeling in CAD (Computer Aided Design).

- Capable of capturing textured and coloured objects ranging in size from 0.03mm (.001in) up to 4 meters (13ft)
- Light, handheld portable scanner
- Easy scanning in high resolution
- Multi functional handheld 3D scanner

LEICA BLK360

The Leica BLK360 captures the world around you with full-colour panoramic images overlaid on a high-accuracy point cloud. Simple to use with just the single push of one button. Using the ReCap Pro mobile app, the BLK360 streams image and point cloud data to an iPad. The app filters and registers scan data in real time. After capture, ReCap Pro enables point cloud data transfer to a number of CAD, BIM, VR and AR applications. The integration of BLK360 and Autodesk software dramatically streamlines the reality capture process thereby opening this technology to non-surveying individuals.



EQUIPMENT FOR SALE & HIRE

ROMER ABSOLUTE ARM

A first in the world of portable measuring arms: The ROMER Absolute Arm features absolute encoders and is therefore the first measuring arm which does not require referencing before measurement. When the arm is turned on, it's ready to go.

- 73 series and 75 series available
- Available in seven lengths between 1.2 m and 4.5 m
- SmartLock also allows the arm to be fixed in any intermediate position
- Feature packs are available for wi-fi communication, wi-fi scanning capability and full battery operation
- Referencing and warm-up time was for yesterday – just switch the arm on and measure

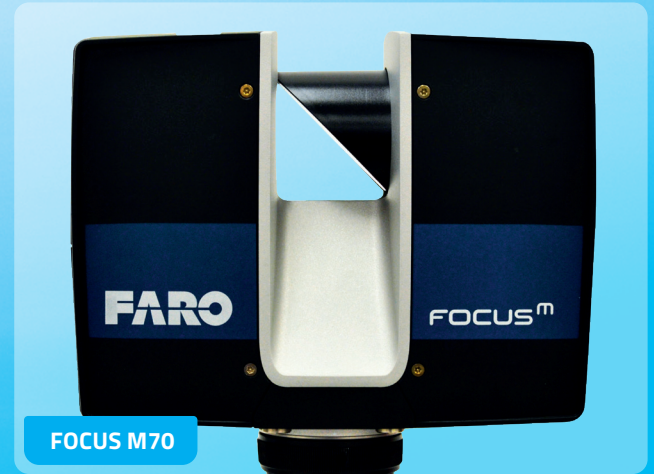


FOCUS 3D X330

The Focus 3D X330 is a high-speed 3D scanner with extra-long range. The Focus 3D X330 advances into entirely new dimensions: it can scan objects up to 330 metres away even in direct sunlight. With its integrated GPS receiver, the laser scanner is able to correlate individual scans in post-processing, making it ideal for surveying based applications.

FOCUS M70

The ultra-portable Focus M70 enables fast, straight-forward and accurate measurements of construction sites, small-scale facades, complex structures, production and supply facilities and crash and crime scenes. The 3D scan data can easily be imported into all commonly used software solutions for architecture and construction, forensics and accident reconstruction or industrial manufacturing. The Focus M70 has a distance accuracy of up to $\pm 3\text{mm}$ and range from 0.6m up to 70m.



EQUIPMENT FOR SALE & HIRE

PEEL 1 3D SCANNER

The Peel is professional-grade handheld 3D scanning in its purest form. It has no useless gadgets to make it seem more interesting or appealing. It simply lets you make high-quality 3D scans of small or large objects while keeping your project on a budget. It can scan most items directly without any preparation as it recognises the shape of objects automatically. Trying to scan something very smooth? No problem! This 3D scanner can also use stick-on markers to let you scan the flattest surfaces.

PEEL 2 3D SCANNER

The Peel 2 is the next-generation of Peel 3D scanners that features the same easy, breezy use—all while packing a 1-2 punch of enhanced performance.

Thanks to this new 3D scanner, you can tackle more complex projects and take advantage of higher measurement resolution, colour capture, enhanced tracking and better geometry capabilities.

*Peel 2 CAD also available – beneficial in reverse engineering



PEEL 1 3D SCANNER



PEEL 2 3D SCANNER

	PEEL 1	PEEL 2
Part Size Range (Recommended)	0.3 – 3.0m (1-10 ft)	0.3 – 3.0m (1-10 ft)
Accuracy	Up to 0.250 mm (0.01 in)	Up to 0.250 mm (0.01 in)
Mesh Resolution	0.500 mm (0.020 in)	0.500 mm (0.020 in)
Measurement Resolution	0.500 mm (0.020 in)	0.250 mm (0.010 in)
Measurement Rate	550,000 measurement/s (1)	550,000 measurement/s (1)
Volumetric Accuracy (based on the part size)	0.500 mm/m (0.006 in/ft)	0.500 mm/m (0.006 in/ft)
Scanning Area	380 x 380 mm (15.0 x 15.0 in)	380 x 380 mm (15.0 x 15.0 in)
Stand-off Distance	400 mm (15.75 in)	400 mm (15.75 in)
Depth of Field	250 mm (10.0 in)	250 mm (10.0 in)
Light Source	White light (LED)	White light (LED)
Colours	N/A	24 bits
Texture Resolution	N/A	50 to 150 DPI
Positioning Methods	Geometry and/or targets	Geometry and/or targets and/or texture
Weight	850 g (1.9 lb)	950 g (2.1 lb)
Dimensions	96 x 140 x 258 mm	150 x 171 x 251 mm
Connection Standard	1 x USB 2.0	1 x USB 2.0
Output Formats	.dae, .fbx, .ma, .obj, ply, .stl, .txt, .wrl, .x3d, .x3dz, .zpr	.dae, .fbx, .ma, .obj, ply, .stl, .txt, .wrl, .x3d, .x3dz, .zpr
Operating Temperature Range	5-40 °C (41-104 °F)	5-40 °C (41-104 °F)
Operating Humidity Range (Non-Condensing)	10-90%	10-90%
Certifications	EC Compliance (Electromagnetic Compatibility Directive, Low Voltage Directive), IP50, WEEE	EC Compliance (Electromagnetic Compatibility Directive, Low Voltage Directive), IP50, WEEE

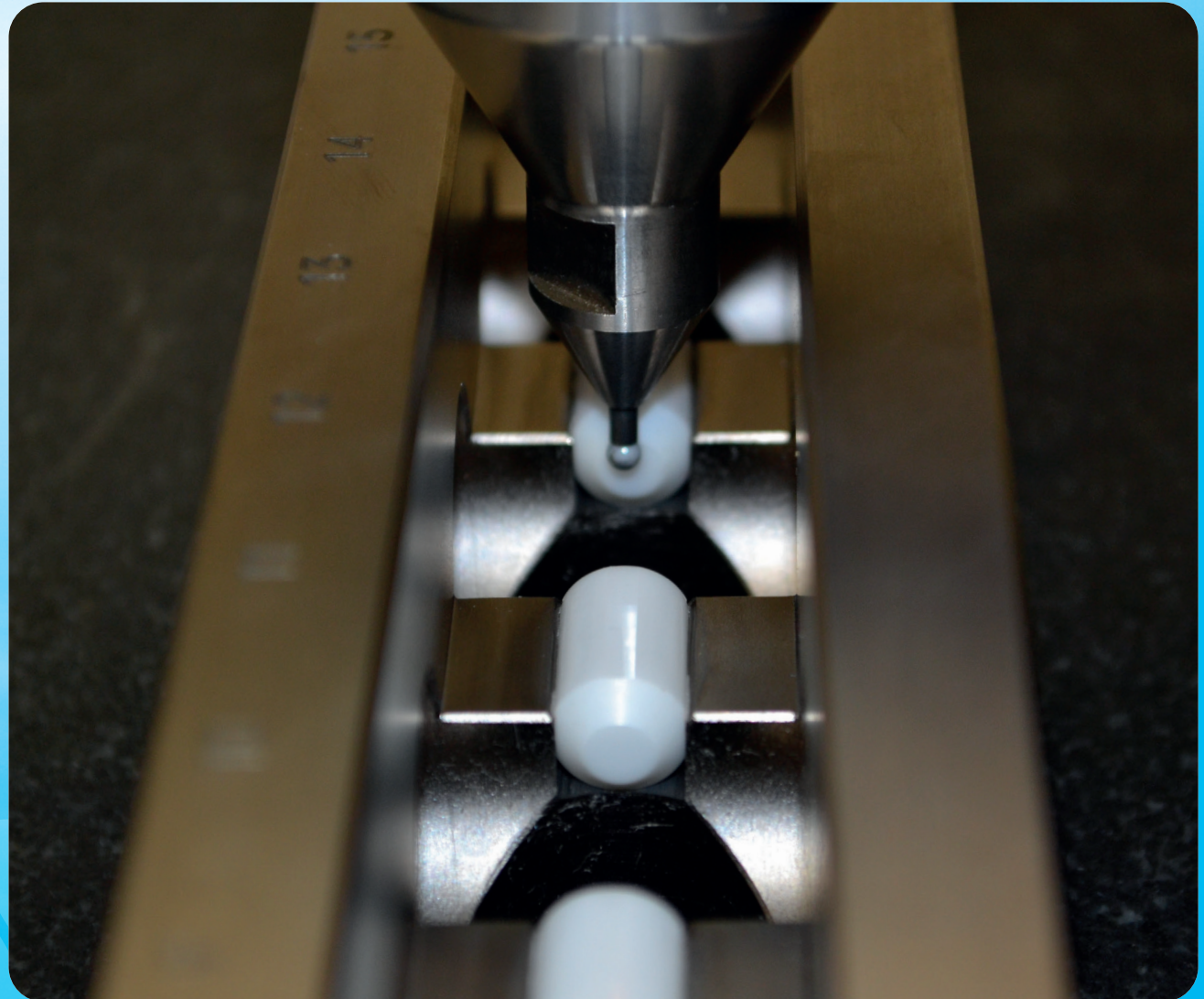
ARM & TRACKER RE-CERTIFICATION

Manchester Metrology offers a re-certification service for portable arms, laser trackers and scanners. The Arm can be calibrated on site or can be shipped to our temperature controlled facility where it will be temperature soaked overnight ready for a full clean and inspection service with a full 12 month calibration certificate (traceable to National UKAS standards).

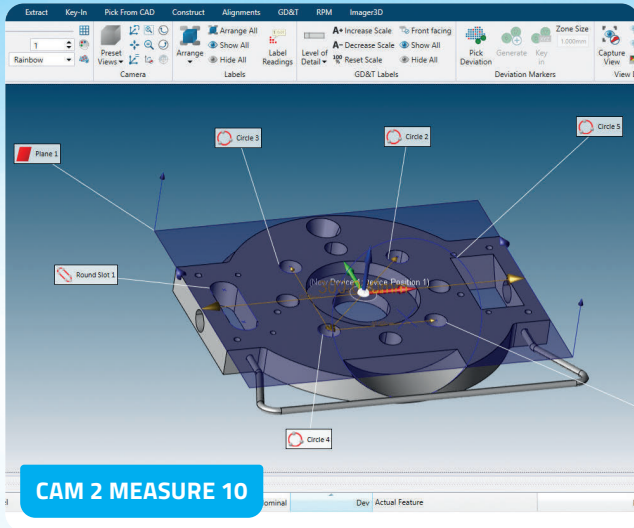
We have engineers which are UKAS Accredited to perform ISO10360-2:2009 on all makes of portable arm, and are also able to advise the real measuring accuracy of your portable arm. We can offer an offsite option at a more affordable cost if preferred. This involves sending the equipment to us for calibration, however, we are also able to offer an on-site service, thereby reducing "down-time" to a minimum (less than one day).

The United Kingdom Accreditation Service is the sole national accreditation body for the United Kingdom. UKAS is recognised by the UK government to assess organisations that provide certification, testing, inspection and calibration services against internationally agreed standards. Accreditation by UKAS demonstrates the competence, impartiality and performance capability of evaluators.

By using a UKAS accredited organisation for your CMM calibration, you have an assurance of the competence, impartiality and integrity of conformity of the work done by us. UKAS accredited certification, testing, inspection and calibration also reduces the need for suppliers to be assessed by each of their customers.



SOFTWARE & TRAINING



CAM 2 MEASURE 10

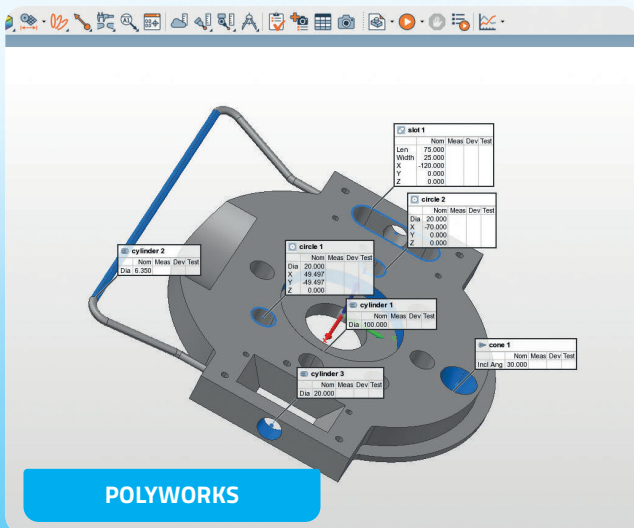
CAM 2 Measure 10, this latest software is extremely user friendly and requires 2 to 3 days training depending on the users requirements. The latest version includes scanning capabilities.

CAM 2 MEASURE X 1

This software is still a great choice for measurements from basic to CAD. A 2 day training course can also be provided.

AUTODESK POWERINSPECT

A great all round software with CAD and basic geometry that can be used with Portable Arms, Gages and Laser Trackers. A 2 day training course is required. Latest version includes scanning functionality.



POLYWORKS

PolyWorks Inspector is a powerful industrial 3D metrology software solution to control tool or part dimensions, diagnose and prevent manufacturing and assembly issues, guide assembly building through real-time measurements, and oversee the quality of assembled products by using non-contact point cloud digitizers and single-point contact-based probing devices.



SOFTWARE & TRAINING

SPATIAL ANALYZER

Spatial Analyzer is the premier portable metrology software solution for large-scale applications. SA is an instrument-independent, traceable 3D graphical software platform that makes it easy for users to integrate data from multiple instruments and perform complex tasks simply, ultimately improving productivity.

ABERLINK

Aberlink is a cost effective, user friendly software which can be used on Arms, Gages and CMM machines. A 1 day training course is required.

CAM 2 SMART INSPECT

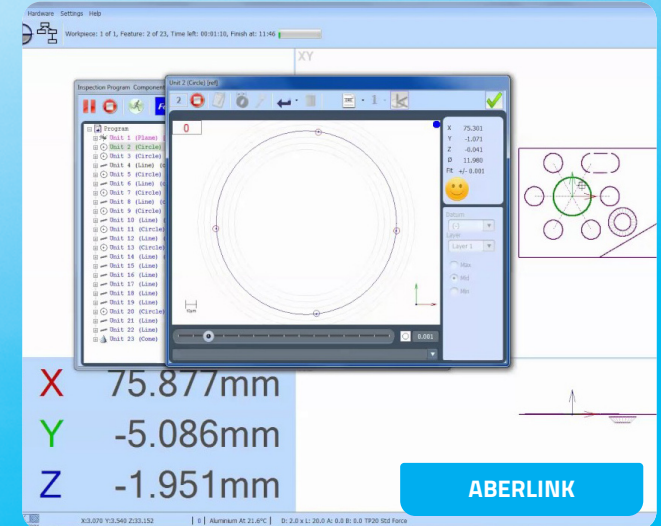
Engineered for simplicity, this is the perfect software for any users who are looking for non-CAD based inspection.

CAM 2 MEASURE V4

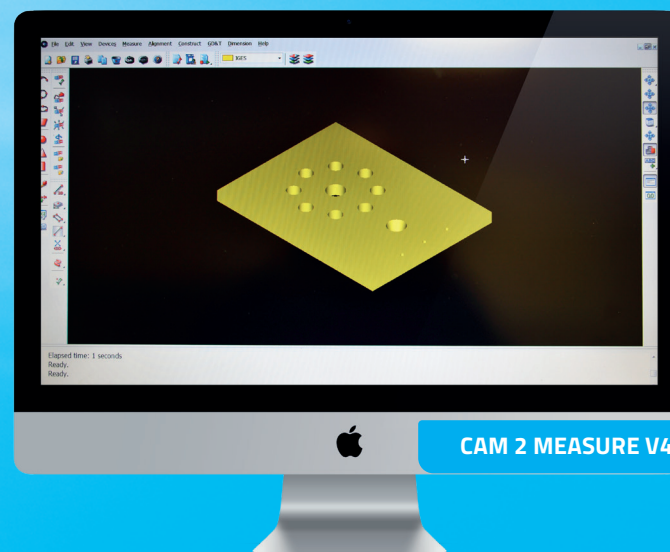
CAM 2 Measure V4 is used on Gold, Silver and Bronze series arms.



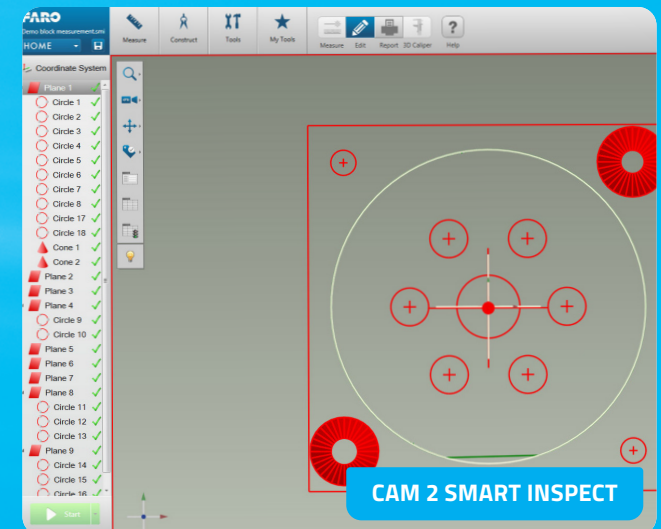
SPATIAL ANALYZER



ABERLINK



CAM 2 MEASURE V4



CAM 2 SMART INSPECT

SOFTWARE & TRAINING

GEOMAGIC

GEOMAGIC has several scanning software systems for scanning and comparing CAD to reverse engineering point cloud data. A 3 day training course is required.

GEOMAGIC DESIGN X

The most comprehensive reverse engineering software, combines history-based CAD with 3D scan data processing.

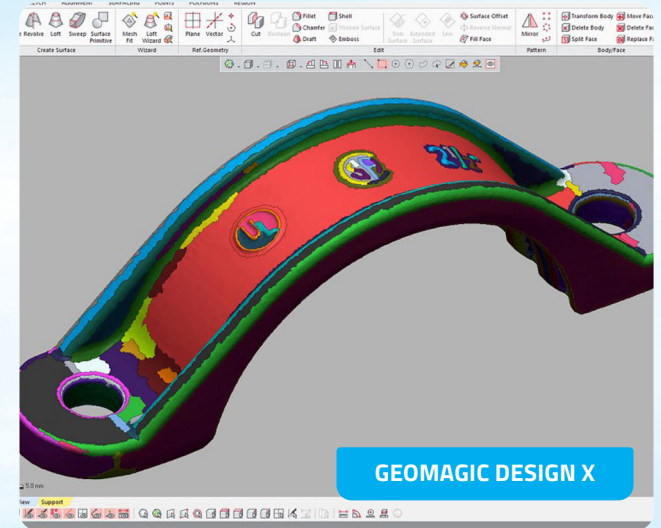
GEOMAGIC CONTROL X

A comprehensive metrology software platform that delivers the industry's most powerful tools within straightforward workflows.

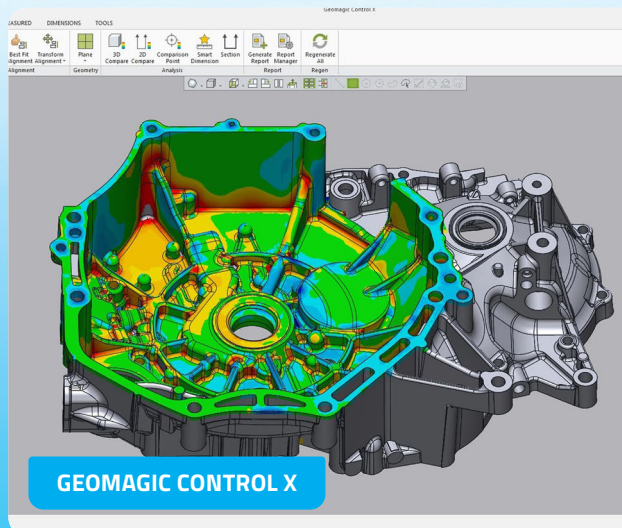
GEOMAGIC WRAP

Delivers the industry's most powerful toolbox to transform 3D scan data and imported files into 3D models for immediate use downstream.

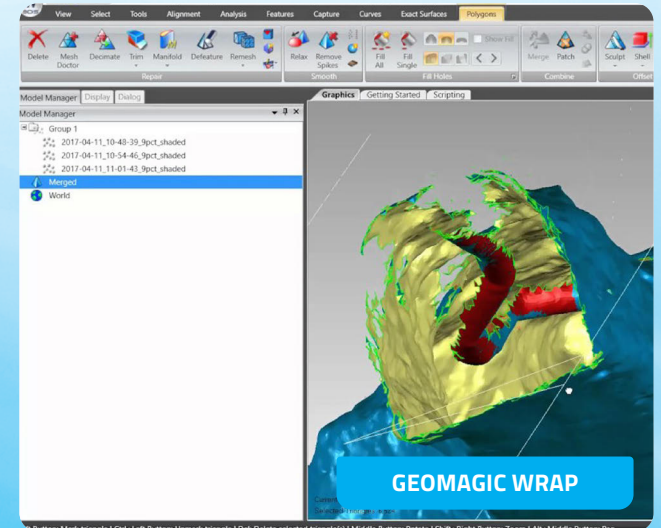
GEOMAGIC FOR SOLIDWORKS ALSO AVAILABLE



GEOMAGIC DESIGN X



GEOMAGIC CONTROL X



GEOMAGIC WRAP

SERVICES - 3D PRINTING (available for hire & purchase)

FABPRO 1000

Simply produce models in hours, not days with the FabPro 1000. Compared to other 3D printing systems, the FabPro 1000 can create higher-quality parts with precision and smooth finish at up to three-times-faster high-throughput print speeds. How? This piece of technology uses a projector to image each layer for easy and precise printing, with the ability to build several smaller parts on a single platform for increased productivity.

FABPRO 1000



PROJET CJP 460 PLUS

Incorporating advanced 3-channel CMY full-color 3D printing and integrated cleaning station, the ProJet CJP 460Plus operates with safe build materials, active dust control and zero liquid waste, making it an ideal office companion for a wide range of applications. The ColorJet printing technology allows the fastest print speeds, 5x–10x faster than all other technologies, to deliver models in hours, not days. Its high throughput supports an entire department with ease.

FIGURE 4 STANDALONE

Quick and easy material changeover allows for functional prototyping and production applications diversity with the same printer. Featuring a manual material feed, it is augmented with separate post-processing units available for cleaning, drying and curing. Achieve same-day functional prototyping and low volume production with ultra-high speeds.



PROJET CJP 460 PLUS

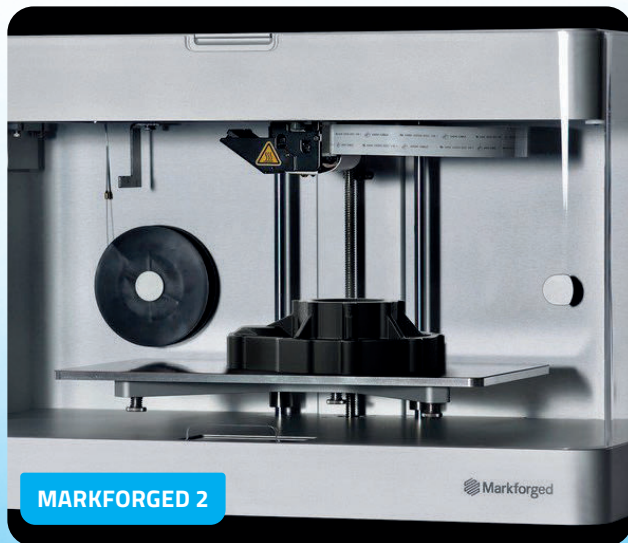


FIGURE 4 STANDALONE

SERVICES - 3D PRINTING (available for hire & purchase)

MARKFORGED 2

The Mark Two is a 3D printer for serious engineering and manufacturing applications. This is the first 3D printer in the world capable of printing composite materials with a heat deflection temperature of 140°C. So in addition to being able to re-reinforce nylon parts with continuous strands of carbon fibre, Kevlar and regular fibreglass, you can now re-reinforce parts with high-temperature materials like polycarbonate.



SERVICES – 3D PRINTING (available for hire & purchase)

THE SNAPMAKER 1.0

The revolutionary Snapmaker is a modular 3-in-1 3D printer that allows you to unlock your full creative potential from 3D printing to laser engraving, cutting and CNC carving.

With the 3-in-1 software, your stunning creation is just a few clicks away, which allows entry level users to complete the work quickly. The Snapmaker updates regularly with new features to enable users to have the best possible experience when using it.

The Snapmaker has high precision with its all metal build as the all metal frame allows high quality prints. It is the perfect choice for rapid prototyping.

The Snapmaker 3-in-1 3D printer will come with everything you need to start your maker journey including:

- CNC carving
- Laser engraving module
- 3D printing module
- Heated bed
- Touchscreen
- PLA filament
- Laser cutting head is an optional extra for an additional cost



SNAPMAKER 1.0

SERVICES - 3D PRINTING (available for hire & purchase)

THE SNAPMAKER 2.0

A new version of the Snapmaker is now available. The Snapmaker 2.0 modular 3-in-1 3D printers are ideal for beginners who are just getting started, hobbyists who prefer more customized options, as well as engineers and designers who want to print large objects or accurate parts with outstanding print quality.

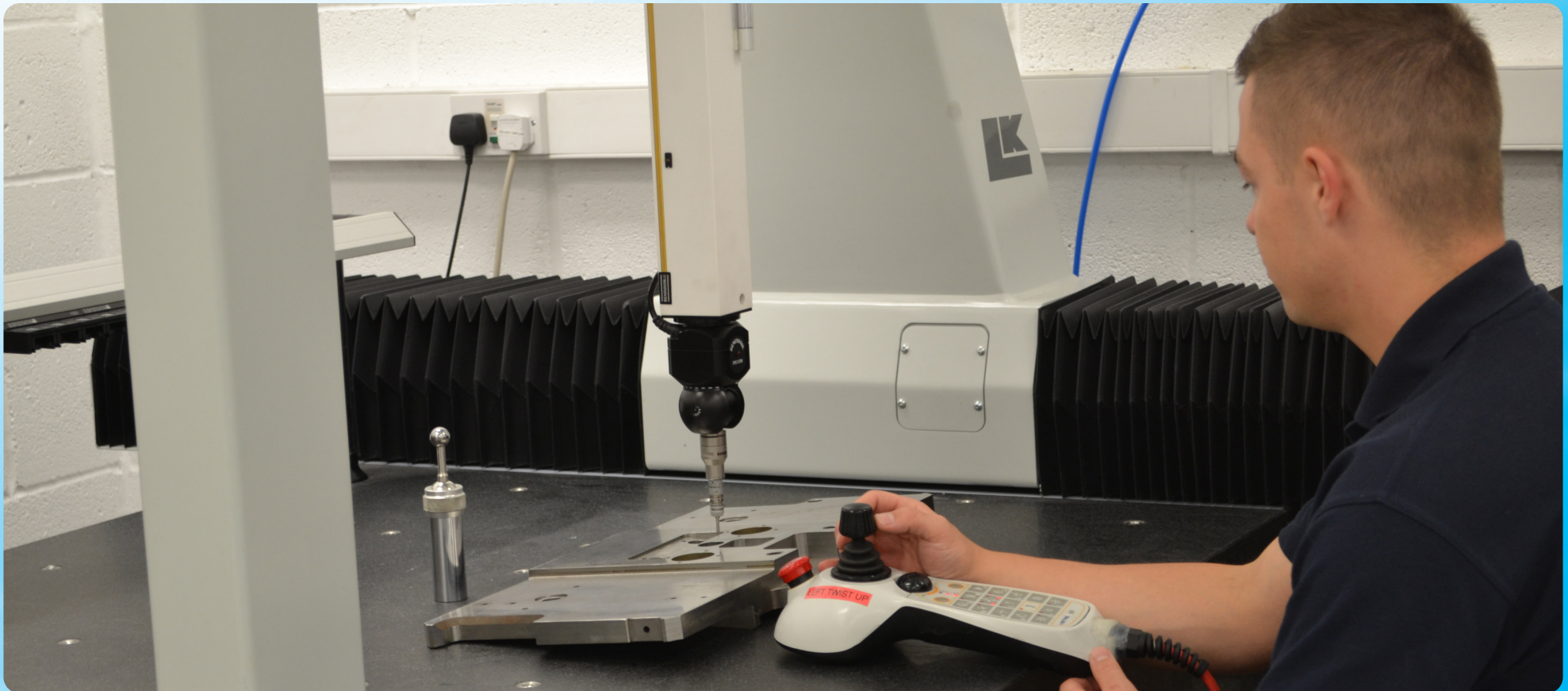
You can use the Snapmaker 2.0 as a CNC router to create precision 2.5D and 3D objects. It has faster working speed and a much larger workspace than the original model. It is the perfect machine to extend your interest to CNC carving.

It comes in 3 different sizes: Snapmaker 2.0 A150, Snapmaker 2.0 A250 and Snapmaker 2.0 A350.



CMM

The superior ceramic design, with near perfect stiffness-to-weight ratio and greater resistance to temperature shifts, provides consistent performance across all manufacturing environments. Advanced multi-sensor ready technology optimises CMM throughput and provides the opportunity to broaden the application scope to new materials and components as needs change. Innovative work-flows and intuitive software features facilitate complex inspection tasks and boost productivity.



SERVICES

CYBERGAGE 360

Unprecedented combination of speed, accuracy and one-button simplicity for non-contact automated 3D scanning inspection.

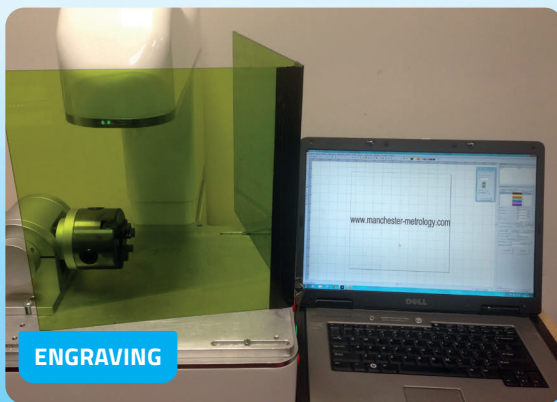
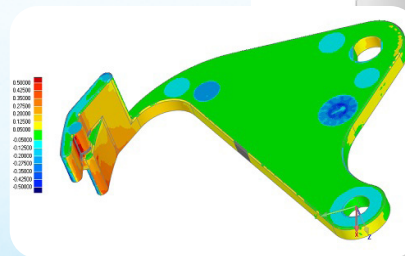
Dramatically speeds up quality assurance of in-process inspection and/or incoming/outgoing parts inspection; lowers cost of quality and speeds up product time-to-market.

Designed for use in general purpose metrology, the CyberGage®360 has a range of applications from medical to automotive to aerospace to consumer electronics, where high accuracy and high speed throughput are important.

ENGRAVING

With our laser engraver we offer a cost effective solution to I.D or mark metals and plastics. We are able to offer the latest laser digital technology to meet most cost constraints and productivity expectations.

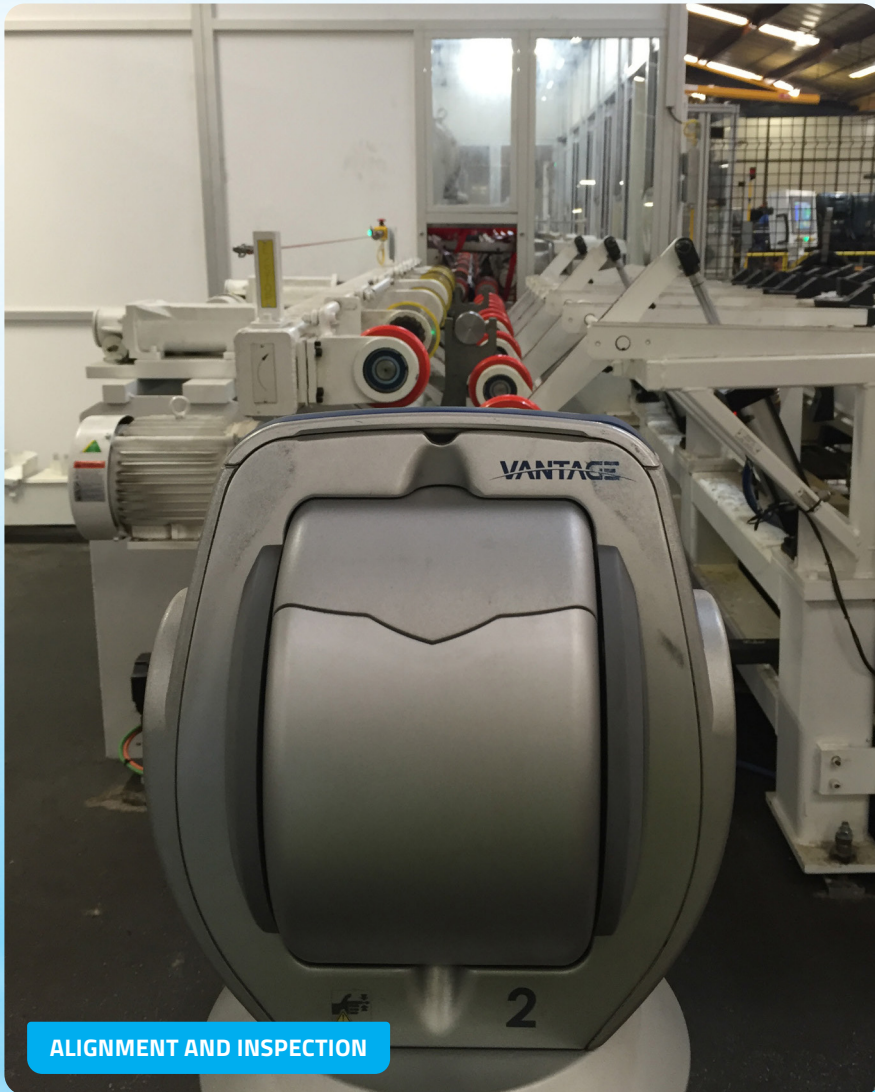
CYBERGAGE 360



ENGRAVING



ENGRAVING



ALIGNMENT AND INSPECTION

ALIGNMENT

With the use of our Portable Arms and Laser Trackers with a range of 320 meters, we can provide accurate alignments of shafts, bearings, machine centres and motors to gears. Where there is no reference data such as CAD or drawings, this is a necessary requirement for industries such as manufacturers of submarines and power stations.

PORTABLE CMM INSPECTION

Dimensional inspection services cover a range of small and large parts, assemblies and fabrications subcontracted to many industries such as Oil & Gas, Automotive, Aerospace and Rail using portable CMM arms, hand held laser scanners and 3 & 6 degrees of freedom Laser Trackers. We can inspect to 2D drawings or 3D CAD models with GD&T using a wide range of software such as CAM2 measure 10, Polyworks, Autodesk, Geomagic and more, giving a detailed report tailored to your needs.



ROLLING MILL ALIGNMENT

ROLLING MILL ALIGNMENT

Large rolling mills and other forging mills can be aligned back to their original nominal state by multiple station moves with a Laser Tracker and Spatial Analyzer software's capabilities of bundling reference data in a network. This minimises the error sometimes seen in large scale measurements.

FOCUS 3D X330

The Focus 3D X330 is a high-speed 3D scanner with extra-long range. It can scan objects up to 330 metres away even in direct sunlight. With its integrated GPS receiver, the laser scanner is able to correlate individual scans in post-processing, making it ideal for surveying based applications. With its increased accuracy and range, the Focus3D X330 considerably reduces the effort involved in measuring and post-processing. The 3D scan data can easily be imported into all commonly used software solutions for accident reconstruction, architecture, civil engineering, construction, forensics, industrial manufacturing and land surveying. Distance dimensions, area and volume calculations, analysis and inspection tasks and documentation can thus be carried out quickly, precisely and reliably.

FOCUS 3D X330



SERVICES

LASER SCANNING AND REVERSE ENGINEERING

With our non-contact HD Laser Scanners, we can provide a CAD comparison service with detailed reports to suit customer requirements. We also offer a Reverse Engineering service to produce true to form 3D data in .stl file formats and also full parametric CAD modelling in multiple file formats using Geomagic Design X, Geomagic Wrap and solid works.



LASER SCANNING AND REVERSE ENGINEERING

FLOOR MARKING AND ROBOT CALIBRATION

When installing a new assembly line or cell, or modifying existing plant, you need to accurately know where everything is located. Even in a new building, accurate measurements of walls, floor, roof, columns and existing infrastructure will ensure the new equipment and the plant will fit. If you are retrofitting, replacing, or upgrading an existing facility, there is an even larger requirement for information, such as current machinery, robots, tools, fixtures, gantries, power supplies, pipework, walkways, barriers, cranes, fences, tanks, silos, etc.

Mapping these constraints in 2D (floor plan) or 3D allows for the design to modify and plan the installation of any new equipment. Depending on the size, level of detail and accuracy, Manchester Metrology LTD will use the most suitable technology to ensure the best outcome.



FLOOR MARKING AND ROBOT CALIBRATION



JIG AND FIXTURE CALIBRATION AND RECERTIFICATION

JIG AND FIXTURE CALIBRATION AND RECERTIFICATION

Any size of Jig and Fixtures can be calibrated with our Laser Trackers and Portable arms. Jigs and fixtures can be calibrated to CAD models or simple X, Y, Z Coordinates and GD&T requirements specified in drawings and ISO British standards.

LASER TRACKER AIDS JCB JIG AND FIXTURE CALIBRATION

Over the last 70 years, JCB's reputation for superb build quality has led to worldwide success. In 2008, JCB Heavy Products opened a new £43 million factory in the UK producing 8,000 machines a year. JCB needed to find an effective way of guaranteeing that its high, exact standards are consistently met with every component on every machine.

As part of the company's investment, JCB has developed new machining centres including extremely accurate jigs and fixtures, the use of which puts JCB in direct control of component quality. In order to do this JCB required an external contractor to undertake the jig and fixture calibration procedures. JCB's pre-delivery procedures are exhaustive including a 200-point check before each machine leaves the factory.

Manchester Metrology established a jig and fixture calibration regime using the Vantage Laser Tracker which facilitates the generation of detailed, traceable certificates as highlighted when the jig or fixture drifts from its normal position. This technology allows JCB to pre-empt any possible problems and further ensures continued quality standards whilst simultaneously reducing down time.

Andy Young, Manufacturing Engineering Manager at JCB explains, "In addition to calibration procedures, Manchester Metrology's use of the Laser Tracker has proven invaluable in determining the accuracy of our prototypes. Also, the advanced equipment is used for generating initial sample reports on all new sub-assemblies. We are then able to compare the data to CAD models/engineering drawings and identify areas that could cause future concerns."

Manchester Metrology Managing Director, Paul Bulman states "We were able to formulate a suitable plan of action to enable accurate, efficient calibration of JCB's critical jigs and fixtures. We utilised the portable Vantage Laser Tracker as it is ideal for large scale measuring. Having used the tracker and CAM2 Measure 10 software to measure and capture the dimensions of critical features on a jig or fixture, we are then able to compare the data to CAD models and when necessary identify areas that could cause future concerns."



Customers throughout the world trust the Laser Tracker to solve their everyday measurement challenges as well as the most complex gauging problems. Users make considerable cost savings by completing jobs faster, reducing downtime, eliminating waste and achieving the finest quality end product.

3D PRINTING CAPABILITIES EXCEED COLIN McANDRY'S EXPECTATIONS

Colin McAndry, the owner of a 2007 Honda CBR1000RR Fireblade, is a motorbike enthusiast. He has owned the 2007 Honda CBR1000RR Fireblade for 3 years and it is one of 3 identical bikes owned by Colin.

Sports bikes like Fireblades are challenging to ride on the road due to the riding position being designed primarily for racing. This was an issue for Colin as it resulted in him having a lot of weight put on his hands. Combined with vibration and road impacts it became a regular occurrence for Colin to be left with tingling and numbness in the hands. For racing this would be tolerable but for comfortable road use, which is Colin's primary use of the bike, this would be quite dangerous if he continued to take the effects put onto his hands when using the bike and may even have resulted in him struggling to or no longer being able to ride.

Colin began to source something that would help reduce the amount of weight on his hands by utilising the shape of his motorbike. He first began producing a prototype part to prove it would be effective. Following this he began to research a way to develop something more permanent and visually appealing in comparison to the prototype. The surfaces involved are compound curves that would be very difficult to perceive and work with. After discovering the 3D printing service offered by Manchester Metrology, Colin decided that this would be the optimum solution.

Colin McAndry reviewed "The part Manchester Metrology designed and printed is a permanent and much better made copy of my prototype. It works very well indeed, both as a part and as an example of how 3D additive engineering can solve what otherwise would be a very tedious and uncertain process to replicate. Manchester Metrology were prepared to help me from my first enquiry, I was grateful for their open-minded attitude to grasping what I wanted. The facilities and capabilities I have seen at Manchester Metrology appear very comprehensive and capable of meeting virtually any request large or small."

The advanced Mark 2 3D printer is one of the latest advancements in 3D printing technology created by Markforged. The Mark Two industrial grade 3D printer uses materials that no other 3D desktop printer can, such as Carbon Fibre, Fibreglass and Kevlar. Printing a part to be flexible or strong is easy and intuitive with this industry leading piece of technology. Offering limitless possibilities, whether you are an engineer operating in aerospace, automotive, biotechnology, construction, marine or transport, or a manufacturer producing high-strength end-use parts and prototypes, the Mark 2 is unquestionably the best solution for most 3D printing requirements.

Daniel Haughton of Manchester Metrology concluded "Given our need to produce a high quality and durable version of Colin's' prototype, we chose to use the Mark 2 3D printer by Markforged as I believed this to be the perfect solution to meet the needs of our customer. The advanced Markforged product has exceptional material capabilities and is a very reliable

piece of technology. Having this piece of equipment enabled me to produce the bike part with ease and precision to ensure customer satisfaction. Had I not had this piece of equipment I believe I would have struggled to fulfil Colin's requirements."



MANCHESTER METROLOGY'S SPEED AND ACCURACY AIDS WORLD RECORD ATTEMPT

Having smashed the previous mark by 20 mph, Scunthorpe based Becci Ellis set an incredible world record of 264.1mph and became the world's fastest woman on a conventional motorcycle over a standing start mile. Achieving the female land speed record also makes her the fourth fastest rider in the world, just 30mph behind the overall world record set by the late American rider Bill Warner.

Becci's amazing feat was performed at Elvington airfield in North Yorkshire on a 1300cc Suzuki Hayabusa, a sports motorcycle which, when launched in 1999, immediately won acclaim as the world's fastest production motorcycle. In preparation for Becci's record-breaking run, her Hayabusa was highly modified by her husband, Mike Ellis, with the help of a team of dedicated volunteers and sponsors, enabling it to generate a mighty 650 bhp.

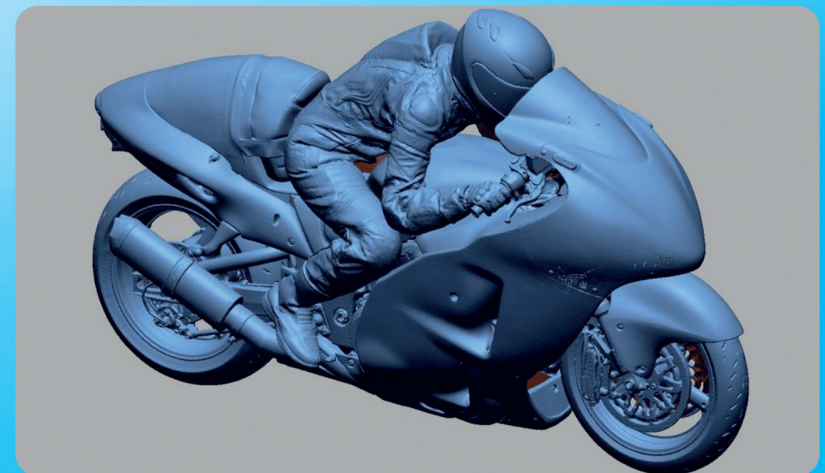
Not satisfied with being the current holder of the record, Becci is now busy preparing for a new attempt to raise her own record speed further. In addition to multiple further mechanical modifications to the previously record-breaking Hayabusa, particular attention is now being paid to the aerodynamics of both the bike itself and to the rider.

Rather than use traditional wind tunnel testing method to analyse and improve the bike's aerodynamic performance, the team behind Becci's latest record-breaking attempt is using advanced virtual simulation techniques.

To help gather the raw data needed to enable the best possible virtual simulation outcomes, the team enlisted the help of Manchester Metrology, acknowledged experts in the field of precise laser scanning and data capture. Mindful of the need to acquire highly accurate data, the staff of Manchester Metrology used a Edge ScanArm HD to undertake the critical scanning routines of the bike and rider.

The advanced Edge ScanArm HD is the latest advancement in the popular ScanArm product range and provides point cloud capture with rapid speed, superior resolution and high accuracy. The compact, easy-to-use Edge ScanArm HD combines the convenience of a Portable Arm with the power of a Laser Line Probe creating a flexible, high-performance contact/non-contact portable measurement system.

Philip Knowlson of Manchester Metrology concluded. "Given our need to perform multiple, highly precise scans of the motorcycle and rider and to generate the vital data required for aerodynamic virtual simulation purposes, we chose to use an Edge ScanArm HD. The advanced product was ideal for this application as it has an exceptional scan rate of up to 560,000 points/second. Also, given the range of different materials we needed to scan, including the bikes faring, wheels and tank, also the rider in her leathers and helmet, it was a major advantage that the Edge ScanArm HD is able to perform precise scanning routines across a range of diverse surface materials without any surface preparation or targets."



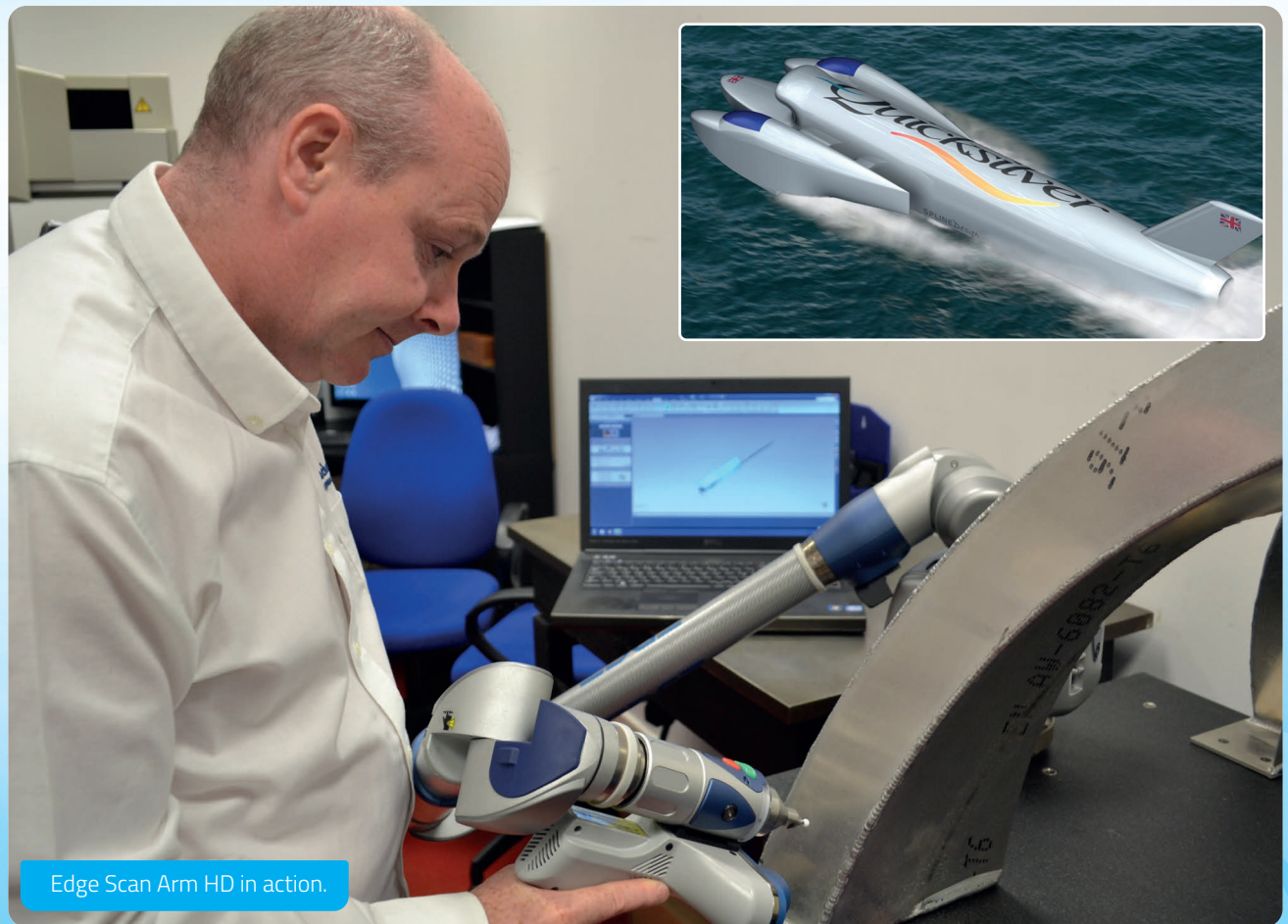
EDGE SCAN ARM HD ASSISTS IN WORLD WATER SPEED RECORD CHALLENGE

Modern-day challengers of the water speed record have a clear benchmark against which to measure their skill and ingenuity. The current record of 317.6mph was set by Australian Ken Warby in Spirit of Australia on the 8th of October 1978, at Blowering Dam Reservoir in New South Wales. Although this impressive mark has been challenged on several occasions, the record has been resolute for more than 36 years.

The World Water Speed Record is the pinnacle of sporting achievement on water, a compelling contest by man and machine, played out on a backcloth of wind and wave, distance and time.

With the objective of bringing the Water Speed Record back to the UK, author Nigel Macknight established the ambitious Quicksilver project. Now, after much development work, experimentation and in-depth trials, an extremely efficient boat design has emerged.

With the help of the Edge ScanArm HD, data has been gathered relating to all of the Quicksilver boat's external surfaces. The rapid capture of precise data will help to speed up the penultimate stage of the project ensuring all panels comply to their conformity specification as it is vital that Quicksilver exhibits outstanding aerodynamic and hydrodynamic characteristics. The Edge ScanArm HD combines the flexibility and the functionalities of a Edge measuring Arm with the high-definition Laser Line Probe HD creating a powerful contact/non-contact portable measurement system ideal for challenging application requirements, such as In-Process Inspection and Automotive.



Edge Scan Arm HD in action.

TESTIMONIALS

"We have been using Manchester Metrology Ltd for the supply of our handheld Inspection scanning equipment for just under a year now and have found them to be very knowledgeable and helpful. The communication and support from Manchester Metrology Ltd is excellent, and this is one of our primary reasons for our continued working relationship."

Director of Matrix AI

"Having requested the support of Manchester Metrology for some 8 years now I have found their knowledge and support excellent. They are reliable, trustworthy and display exceptional engineering understanding. Throughout the years they have helped to reduce program times and have provided accurate, reliable measurements in difficult situations, a pleasure to have on board."

BAE Systems

"I have been working with Manchester Metrology for almost four years. They have an outstanding range of equipment, and without them I would not have been able to do my research to the quality I need. They have exceptional training and customer support, and they are the only company in the UK that I would work with."

Cambridge University

"We have used Manchester Metrology for everything from Training, Spares and Contractor work. They have always shown flexibility to our requirements and offer continuous support and advice throughout. We happily recommend their services for any company that require metrology support and equipment."

QA Manager - Niftylift

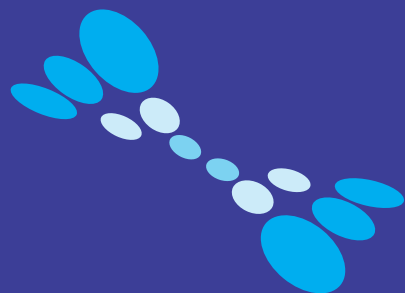
"Having worked closely with Manchester Metrology at my last firm I made it a priority to ensure I worked closely with them upon moving to William Cook. Their knowledge base is second to none and their technical support is as good as any other of the companies that I have dealt with.

They offer a quality of their service and value for money that is vital to our company achieving its high standards. I would have no problems recommending their services to anyone."

Chief Quality Inspector - Cook Defence Systems

"I turned to Manchester Metrology and their 3D printing services when I needed a more permanent and durable version of my prototype motorcycle piece. From the first enquiry, they were prepared to help me, and their open-minded attitude really helped in grasping exactly what I wanted. I would highly recommend using Manchester Metrology if you require help in bringing a prototype design to life."

Colin McAndry



Manchester Metrology

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