

baty

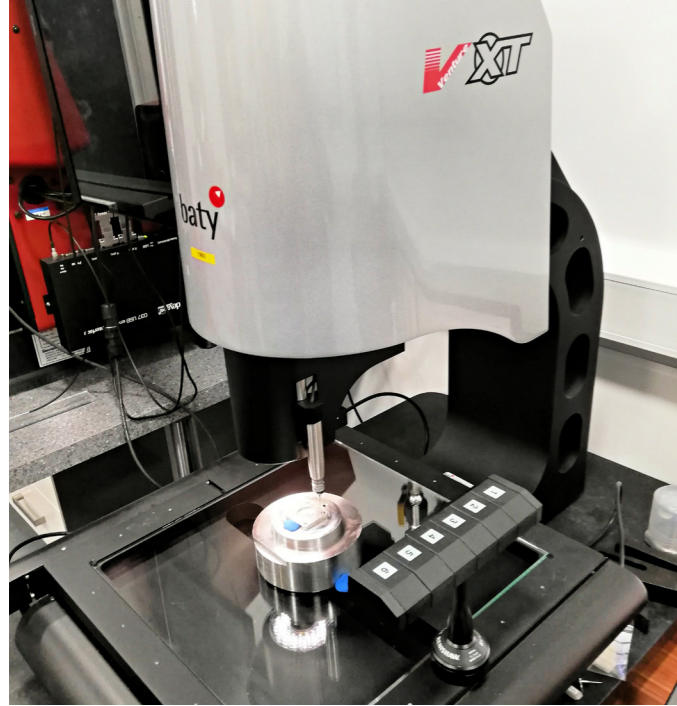
VISION SYSTEMS Optical Instruments



CASE STUDY

Baty Venture XT Achieves 96% Measurement Efficiency Increase for Williams Aerospace Engineering

Williams Aerospace Engineering has invested in a Baty Venture XT CNC Vision System to measure critical precision machined components.



“The Baty Venture XT helps to ensure our product quality by giving us a more consistent and repeatable measurement method. Once a program is written, the Venture is far more accurate than our old manual CMM, which is reliant on the points taken by the operator moving the probe by hand, rather than the CNC control on the Baty system. It is very easy to use and the camera resolution is far more accurate than a standard projector using surface illumination.”

Williams Aerospace Engineering uses the vision system for measuring lengths, radii, rads and angles. The measurements are either taken directly from the part loaded on the machine, or if it is an internal feature, it is reproduced using a rubber compound. The mould is then sectioned and measured on the projector as with an external profile.

Performing In-Process Inspections

David continues:

“The Venture gives us the flexibility to measure countersink diameters whilst measuring hole positions on the same part. Due to the camera’s focal length, it is also possible to focus on counterbores or countersinks that are located within a bore and take measurements, rather than take a mould and use a standard projector. We’re very much looking forward to seeing how much more we can achieve with this piece of equipment in the future.”

The **Baty Venture XT** is used most days either to perform **first off, in process, or final inspections** on parts which are being manufactured at the facility. 2 members of the inspection team at Williams Aerospace Engineering currently use the Baty Venture, but as programs and fixtures become available to use in the future, other personnel will be able to recall programs and **perform their own in-process inspections**. This will then allow the inspectors to concentrate on other areas.

Incorporated as City Tool & Gauge in 1935, which became N. Williams & Co (Southampton) Ltd in the early 1960’s, and finally renamed as Williams & Co (Southampton) Ltd, Williams has been at the cutting edge of engineering ever since. The business also offers **full inspection capabilities to check surface profile**, such as Roundness, Cylindricity, and Concentricity, which are fully calibrated to ACAS Standards.

Meeting Critical Tolerance and High-volume Measurement Requirements

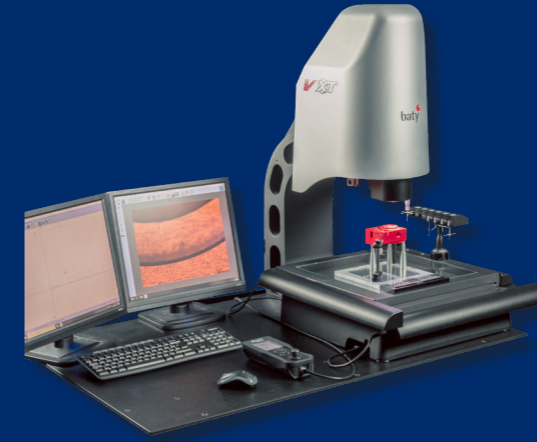
One of the biggest challenges facing Williams Aerospace Engineering was the sheer amount of time it took to **measure components and collate all the data** for its customers. For example, for a customer with particularly high measurement requirements, it would take the quality department 1-2 days to measure the positions of 2 holes on a batch of 100 cover plates, in addition to having to **input data to an Excel spreadsheet** to customer requirements.

Since the investment in the **Baty Venture XT CNC Vision System**, this measurement process can now be completed in just 2 hours, which is a **massive 96% increase in measurement efficiency**. The inspection team at Williams Aerospace Engineering are able to load the fixture onto the machine, insert a part, recall the programme and teach the datum position, completing the batch of the same 100 parts within this much **shorter timeframe**.

Consistent and Repeatable Measurement with The Baty Vision System

David Fripp, Managing Director at Williams Aerospace Engineering said:

baty Contents



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Venture 3030 XT CNC Multi-sensor System

Standard XT CNC System

Features

- Teach and Repeat programming
- Programmable segmented LED lighting
- 6.5:1 zoom optics (with optional CNC control)
- High resolution 0.5µm scales for increased accuracy
- Auto program from CAD
- Scanning and best fitting to DXF
- Fully dimensioned part view
- SPC included
- All reports can be opened directly in Excel™
- Autofocus
- 300mm x 300mm x 200mm XYZ measuring range
- Touch screen joystick controller

Optional

- Renishaw TP20 touch probe kit
- Renishaw 6 port rack changer
- 12x zoom optics
- Program from CAD and CAD compare modules available
- Vision stand
- CNC zoom

The **Venture - CNC** machines include a controller and 2 x 19 inch monitors. With Fusion 3D software, 250 x 115 x 150 and 300mm x 300mm x 200mm XYZ stages.

Venture CNC models take the power of fusion software one stage further by completely automating the inspection process and combining contact and non-contact measurements in the same inspection.

CNC programming is a simple teach and repeat process. Just measure the part once and a full CNC program is created automatically. The zoom lens can also be controlled so that magnification and auto focus changes are all recorded into the program.



Venture 3D

Baty's CNC Vision systems provide fast, repeatable measurements with easy setup allowing for automatic repeat inspections that don't require additional operator time. The Ventures feature a fully integrated PC controller and an optional steel and granite base.

Venture 3030 XT CNC

Venture XT-CNC	
Code No	Description
VI-2510-CNC	Venture 2510 CNC with Fusion 3D software, 250mm to 115mm x 150mm stage, inc. controller, mouse, keyboard and touch screen joystick controller - monitors ordered separately
VI-3030-CNC-XT	Venture XT CNC with Fusion 3D software, 300mm x 300mm x 200mm stage, inc. controller, mouse, keyboard and touch screen joystick controller - monitors ordered separately
TP-20 Kit	Touch probe kit incl ref ball, module and stylus (Optional add-on)

Fusion Software

All machines in the Venture range are equipped with Fusion metrology software, combining easy to use software with advanced edged detection for full geometric measuring capability. standard geometric features and curve profiles' can be measured using dedicated tools and data points are automatically taken along the edge of the feature using Video Edge Detection. All measurements are automatically saved should the inspection need to be replayed for a batch of parts.

Measured features are displayed in the form of a drawing that can be dimensioned to match part drawings. Tolerances can be set for each dimension so that the final inspection reports can classify each dimension as a pass or fail. The dimensional part view that can then be exported or printed along with any other reports made.

Additional information on Fusion software is available.

Inspection Playback

Once a program has been created, it can be played back via CNC control. The machine will drive to each measurement position where Video Edge Detection tools will remeasure the features. The same lighting and magnification conditions will be used as originally set. The end result is a highly repeatable process with no operator influence.

Lighting

The programmable LED lighting is also controlled using the Fusion software. Segmented surface illumination, co-axial, through the lens and profile lighting conditions which can be adjusted to ensure that the feature edge is perfectly illuminated.

Zoom Lens

All Ventures feature CNC operation enabling multiple preset magnifications to be stored and pre-calibrated for immediate use. Magnification range as standard is approx. 30x - 200x* and this can be extended with the use of auxiliary lenses.

Easy Reporting

In addition to a graphical representation of the measured part, detailed reports can be instantly created showing the feature name, nominal dimension, actual, error, upper and lower limits and a green pass or red fail label for each measured dimension in tabulated format. Geometric tolerance details can also be displayed along with a thumbnail view of the part, batch and customer information. These reports can be exported as a Microsoft Excel spreadsheet.

CNC Functionality

This cutting-edge machine combines both vision and touch probes to measure complex geometries and surface features with unparalleled accuracy.

The vision system captures high-resolution images of the object being measured, while the touch probe is used to collect precise measurements of critical features. This combination of technologies allows for comprehensive measurement data to be collected quickly and accurately, making it an ideal solution for industries such as aerospace, automotive, and medical devices.

The integration of a touch probe into a CNC system optimises the measurement process by combining data points taken by the touch probe with those collected through video edge detection. This combination of technologies enables faster and more efficient inspections, reducing inspection times and improving overall productivity.

To further enhance the measurement capabilities of the system, a probe changer rack can be installed. This rack allows for the use of probe modules with a variety of pre-calibrated styli, enabling inspections of different features with ease. The system automatically switches between the styli as needed, with the current probe module being returned to the rack and the next one picked up seamlessly. This feature not only saves time but also eliminates the need for manual intervention, reducing the risk of errors and ensuring consistent and accurate measurements.

With this technology, manufacturers can improve their quality control processes and reduce production time, ultimately leading to increased productivity and profitability.

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Venture Plus Multi-sensor System

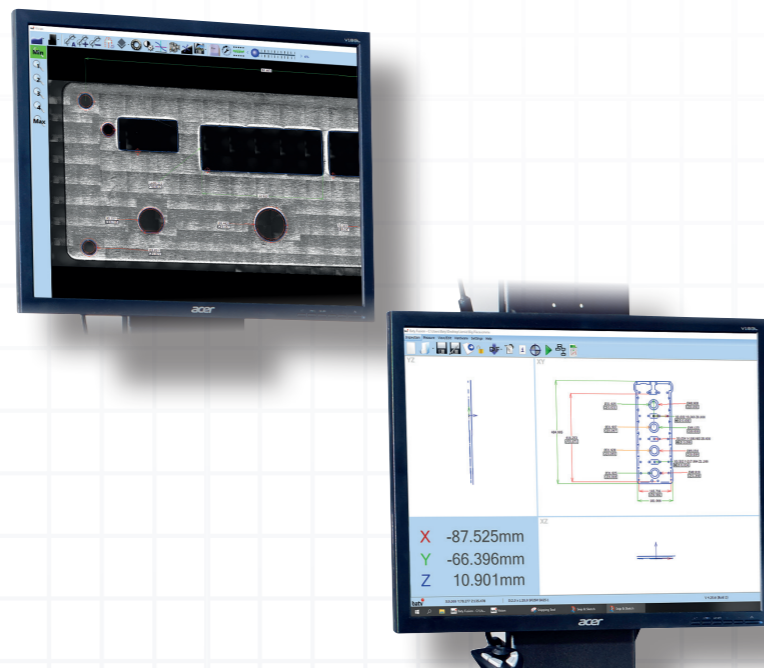
Standard CNC System Features

- Rigid, low mass bridge construction
- Integral 6.5:1 CNC zoom optics
- Teach and repeat programming
- Programmable segmented LED lighting
- High resolution 0.1µm scales for increased accuracy
- DXF scanning and best fitting
- Fully dimensioned part view
- SPC included
- All reports can be opened directly in Excel™
- Autofocus
- Integrated machine stand and adjustable dual monitor mounting arm with keyboard and mouse shelf
- Automatic temperature compensation
- Touch screen joystick controller

Optional

- Program from CAD and CAD compare modules available
- 12:1 zoom optics
- Renishaw SP25 scanning probe
- Renishaw TP20 touch probe kit

The **Venture Plus** range includes all of the standard Venture features with a little more... measuring range, that is.



Venture Plus

Large Measurement Volume

The Venture Plus is available in two models:

- VP-6460-CNC with 640mm x 600mm x 250mm measuring range
- VP-6490-CNC with 640mm x 900mm x 250mm measuring range

The bridge type construction is all aluminium resulting in low inertia and low thermal mass. Air bearings are used on all axes and a granite Y beam is used for increased accuracy. This ensures that the machine will expand and contract uniformly with temperature changes ensuring minimal distortion and subsequent errors. Ambient temperature can be compensated for within the Fusion software making Venture Plus ideal for use on the shop floor.

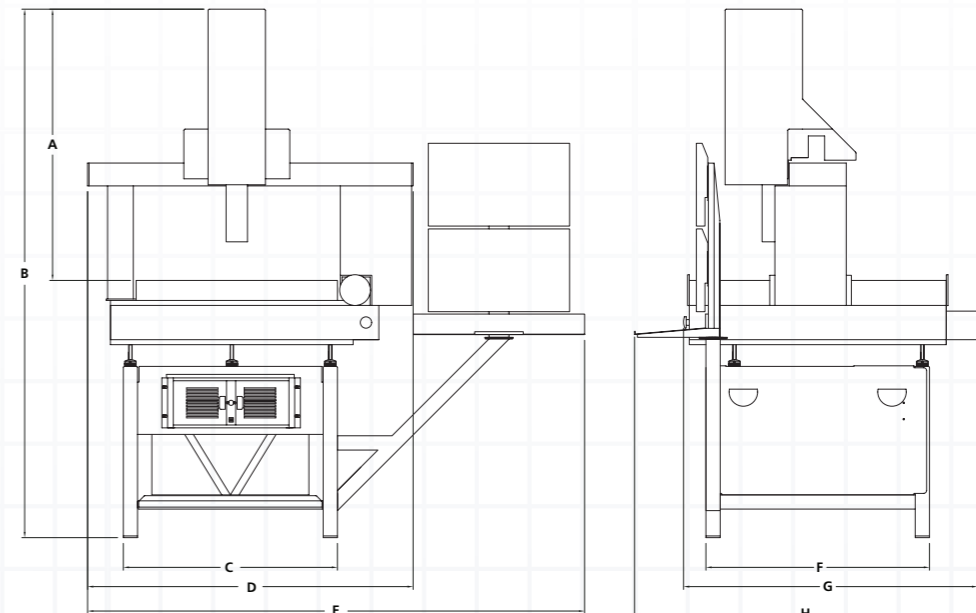
Complete with our standard zoom optics and programmable, segmented LED surface lighting, Venture Plus XT offers the same level of camera based functionality as every other Venture.

The use of a touch probe is optimised on a CNC system. Measurements from data points taken using the touch probe can be combined with those taken using Video Edge Detection for optimum speed and reduced inspection times.

A probe changer rack can be installed so that probe modules fitted with a variety of pre-calibrated styli can also be used in the same inspection. When a change of stylus is required, the system automatically puts the current probe module back in the rack and picks up the next to continue the inspection process. This functionality can be combined with our sophisticated Edge Detection to offer the ultimate in large format multi-sensing Vision systems - Venture Plus XT.

Venture Options

Code No	Description	Dim A (mm)	Dim B (mm)	Dim C (mm)	Dim D (mm)	Dim E (mm)	Dim F (mm)	Dim G (mm)	Dim H (mm)
VP-6460-CNC	Venture Plus (640 x 600 x 250mm)	950	1851	750	1140	1741	783	1030	1201
VP-6490-CNC	Venture Plus (640 x 900 x 250mm)	950	1851	750	1140	1083	1083	1330	1501



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Fusion metrology software has been the foundation for Baty's camera based inspection systems for the last decade. The combination of ease of use, advanced edge detection and graphical reporting has established this remarkable software as the standard by which other vision packages are measured.

Dimensioned Part View

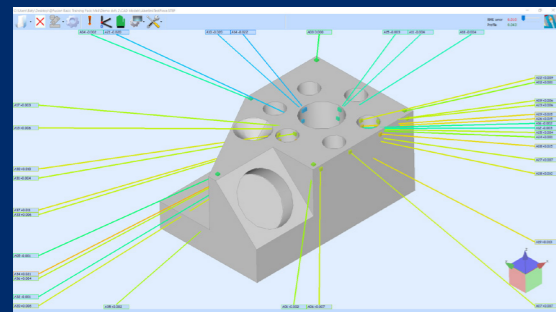
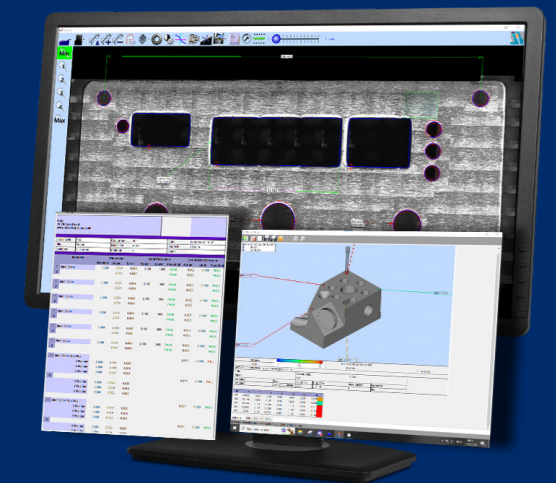
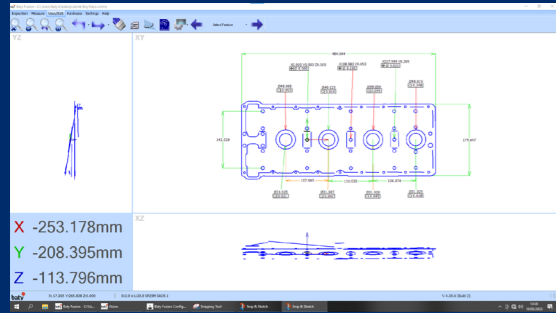
Measured results are displayed in the form of a drawing that can be fully dimensioned to match part drawings. Dimensions within the specified tolerance are shown in green whilst dimensions out of tolerance are shown in red for immediate visual status of the measured part. Geometric tolerances can also be displayed using the standard drawing practice. The final dimensioned part view can then be printed as an engineering drawing with a traditional drawing frame containing company details, customer and part details, date and inspection name.

SPC Data Included

Baty Fusion software will also display SPC batch information for multiple components. Information given includes maximum value in batch, minimum value, user definable sigma value, CP and CPK value, mean shift and also plots two different charts of the batch data.

Easy Reporting

In addition to the graphical representation above, detailed reports can be instantly created showing the feature name, nominal dimension, actual, error, upper and lower limits and a green pass or red fail label for each measured dimension in tabulated format. Geometric tolerance details can also be displayed along with a thumbnail view of the part and batch/customer information. The entire report can be exported as a Microsoft Excel spreadsheet



Baty 45 Victoria Road www.bowersgroup.co.uk											
Drawing No: 123		Equipment: 001		Date: 13/01/2023 10:07							
Title: Report		Batch NO: A123		Inspector: J Smith							
Customer: Customer		Material: 1		Notes:							
Identifier	Dimension	Nominal	Actual	Error	Upper	Lower	Pass/Fail	Geometric Tolerance	Actual	Limit	Pass/Fail
1	2mm Circle	2.000	2.004	0.004	2.100	1.900	PASS	0.002	0.060	PASS	
2			2.004	0.004			PASS	0.002			PASS
1	2mm Circle	2.000	2.004	0.004	2.100	1.900	PASS	0.003	0.060	PASS	
2			2.004	0.004			PASS	0.003			PASS
1	2mm Circle	2.000	2.004	0.004	2.100	1.900	PASS	0.002	0.060	PASS	
2			2.004	0.004			PASS	0.002			PASS
1	2mm Circle	2.000	2.006	0.006	2.100	1.900	PASS	0.003	0.060	PASS	
2			2.006	0.006			PASS	0.002			PASS
1	2mm Circle	2.000	2.004	0.004	2.100	1.900	PASS	0.002	0.060	PASS	
2			2.004	0.004			PASS	0.002			PASS
1	2mm Circle True Pos.							0.072	0.060	FAIL	
	X Position		-3.600	-3.464	0.036						
	Y Position		2.000	2.001	0.001						
	Z Position		0.000	0.004	0.004						
2								0.073	0.060	FAIL	
	X Position		-3.600	-3.464	0.036						
	Y Position		2.000	2.001	0.001						
	Z Position		0.000	0.003	0.003						
1	2mm Circle True Pos.							0.008	0.060	PASS	
	X Position		0.000	0.000	0.000						
	Y Position		4.000	4.001	0.001						
	Z Position		0.000	-0.004	-0.004						
2								0.008	0.060	PASS	
	X Position		0.000	0.000	0.000						
	Y Position		4.000	4.001	0.001						

Fusion Software

Video Edge Detection

Video Edge Detection (VED) ensures a repeatable result without relying on the skill of the operator. Hundreds of data points can be taken in an instant to calculate standard geometric features. Standard VED tools include arc, circle, line, point and curve.

Image Stitching and Profile Scanning

A camera image can be taken and stored every time the XY stage is paused. These images may be "stitched" together to allow the user to zoom out and view the entire component in the camera image view. Imported DXF files may be used as overlays which can be super imposed on top of the stitched image, providing a visual comparison of the entire part to the tolerance bands shown on the DXF. If a profile measurement is required the curve tool can be used to automatically trace the profile of the part. The resulting polyline curve can then be viewed both in the part view, for reporting, as well as the stitched camera image. A profile dimension can easily be added to define the best fit profile error. Image stitching can also be used to quickly grab all of the features of a large 2D component. A CNC inspection routine can then be created by simply clicking on the feature to be measured using the "one click" feature or "all features in an area" tools.

Touch Probe Compatible

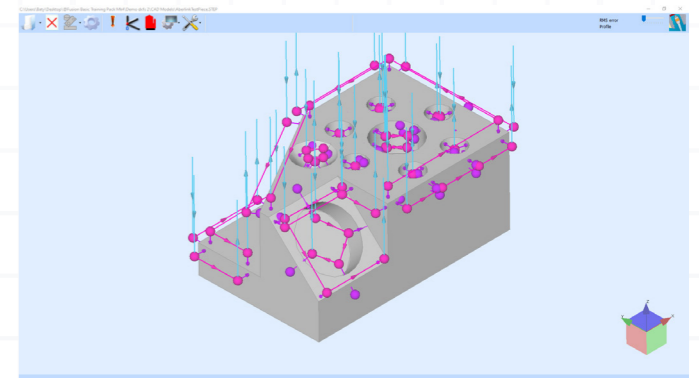
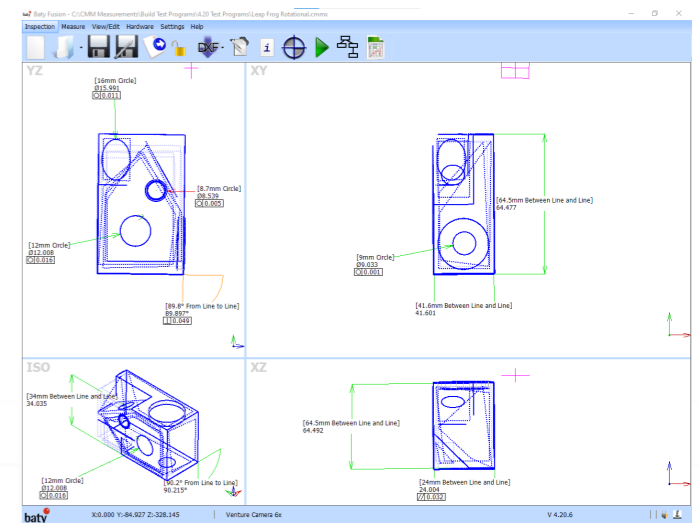
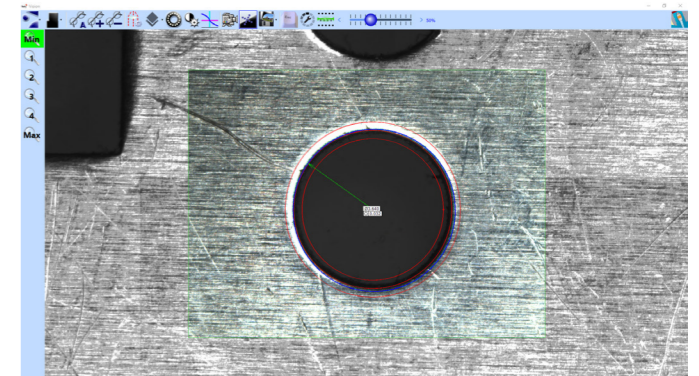
Fusion metrology software is ready to accept touch probe measurements as well as optical and camera based. Offsets for each measuring system can be calculated enabling you to use a combination of contact and non-contact measurements in the same inspection. An optional probe storage rack can also be used to allow automatic probe changes mid program. For touch probe scanning applications, Renishaw's SP25 scanning probe option can be specified.

CNC Operation

The CNC option enables fully automatic part inspection with teach and repeat programming and manual joystick control. Parts can be suitably arranged for batch inspection and reports are generated automatically.

CAD Option

Baty Fusion has two optional CAD modules to enhance its measuring capabilities; CAD Programming and CAD Comparison. Your STEP or IGES files can be used to create inspection programs or compare measured points to 3D models of a part.

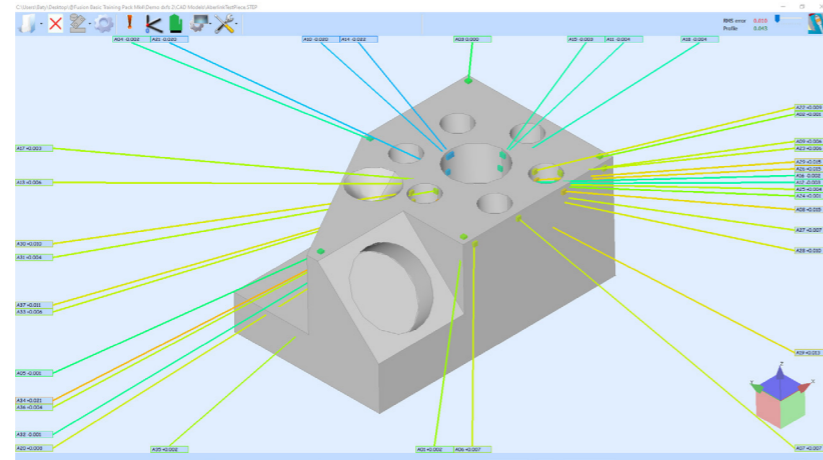


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CAD

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CAD Programming

The CAD programming module allows you to quickly and easily use a CAD model to create an inspection program. This can either be done on your machine or offline on a PC, freeing up valuable machine time. Rather than taking measurement points on a component, just click on the surface of the model where you would like the points to be taken and generate all the features needed for your inspection.

CAD Comparison

After an automatic alignment routine, the points measured in your inspection can be compared to the CAD model. These data points are classified according to their deviation from the nominal surface and displayed by colour to visually indicate the error of each point. This 3D profile analysis is ideal the ideal way to measure complex geometries or inspect parts for which drawings do not exist.

Venture Accessories

VI-3030-UFB

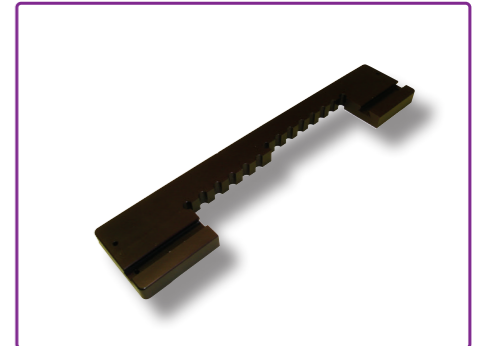
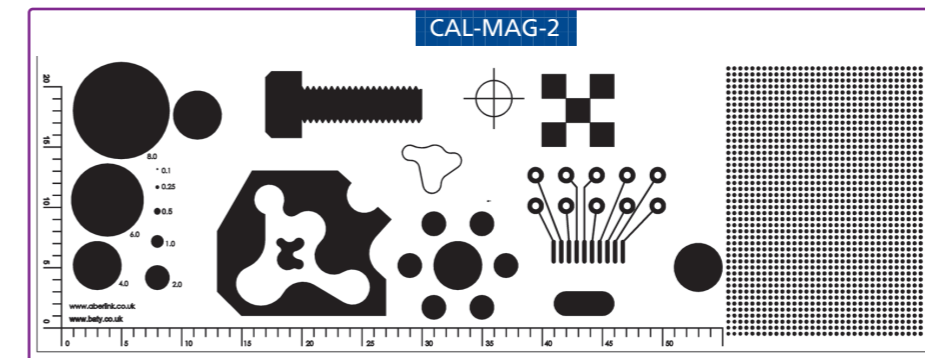
Universal fixture base provides fixture mounting slots compatible with 300mm stages

Workstation

Industrial workstation with lockable cupboard and seating space. Suitable for all Venture 3030 models

Glass Reference Standard

Calibration standard with nominal diameters for field of view measurement verification and pixel calibration. Included free-of-charge with every machine purchase.



Venture Options

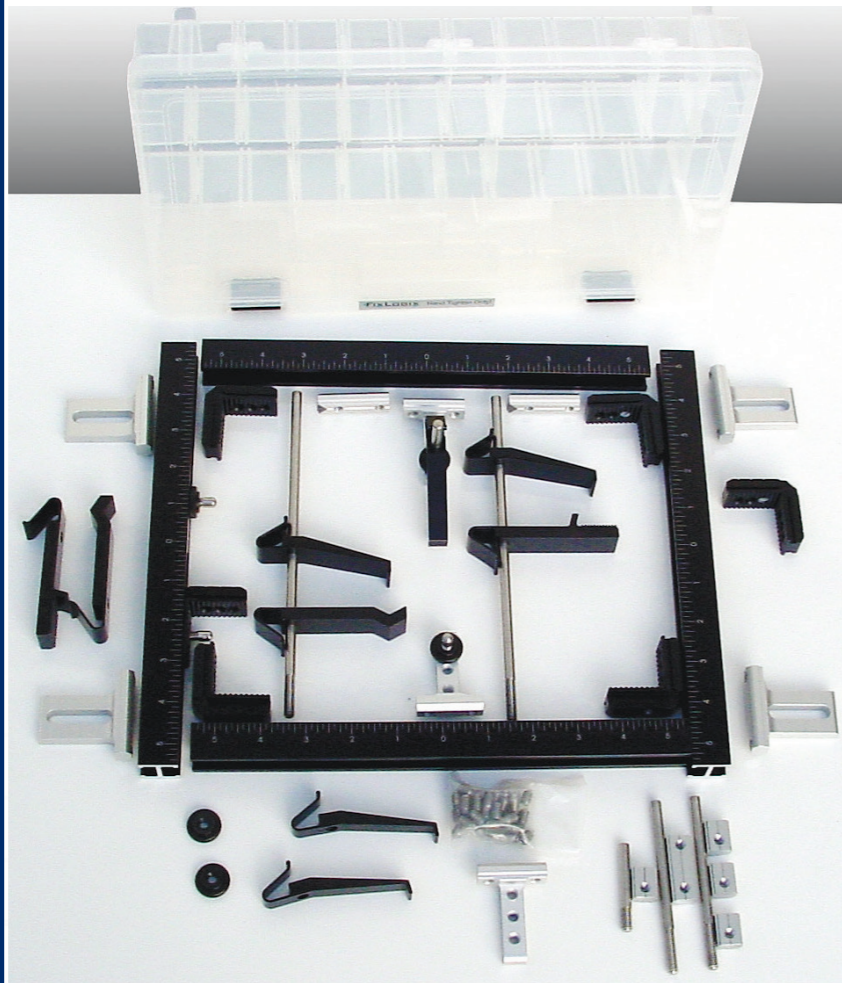
Code No	Description
AB3D-CAD-Comp	CAD comparison software
AB3D-CAD-Prog	CAD programming software
SB-A-1371-0163	Probe module change rack - stores up to 6 probe modules for automatic changing
VI-3030-UFB	Universal fixture base
VI-WORKSTATION	Industrial workstation with lockable cupboard and seating space. Suitable for all Venture 3030 models
CAL-MAG-2	Glass calibration artefact (Included free-of-charge)

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Flexmaster components introduce new technology. Our self-wedging clamps offer near zero clamping force. Sliding T-nut tooling blocks provide an infinite variety of fixture solutions.

Even the corner joiners for our frame are dual purpose, providing ridges that allow backlighting to illuminate edges for inspection.



Fixture frame assembly, includes the following

- 4 off linear slide-frames with T-slots, and laser marked reference scales
- 4 off ridged two-way T-nuts for corner joining and part location
- 4 off sliding hold-down brackets with slots for 2 axis adjustment to mount T-slot frames to venture stage frame

Fasteners

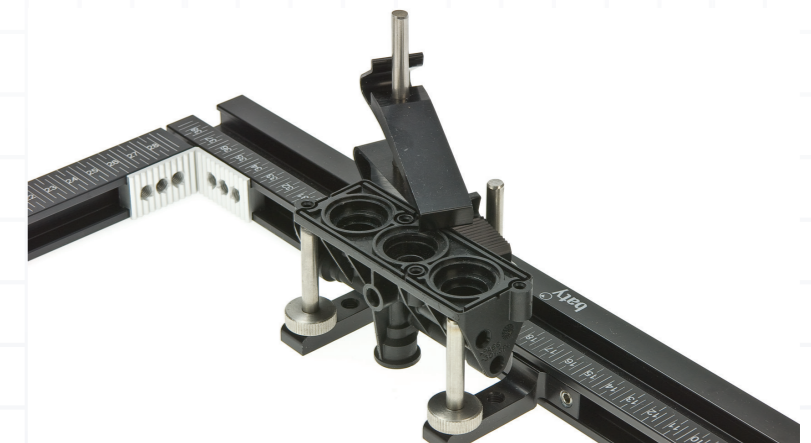
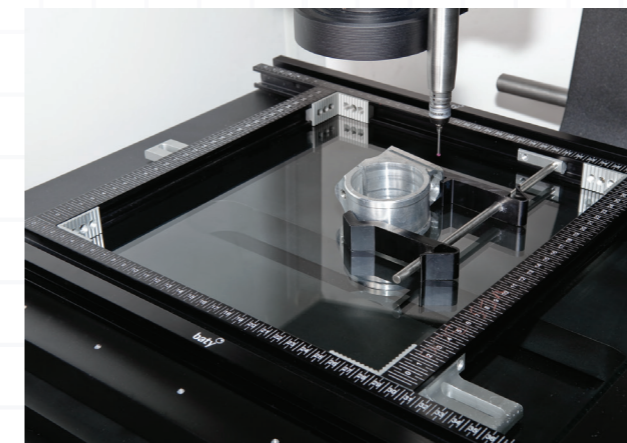
- 30 off stainless grub screws
- 3 off long T-nuts
- 6 off short T-nuts
- 2 off T-nuts with machined vee in end
- 12 off locknut with threaded ID.
(For use with clamp rods, thumbscrew, and spherical locator pin)

Clamps and Rods

- 2 off narrow 'soft-touch' self-wedging tail-spring clamp
- 2 off wide 'soft-touch' self-wedging tail-spring clamp
- 2 off self-wedging V-clamp
- 2 off ridged corner locator clamp
- 3 off stainless clamp rod.
(Use with locknut to attach rods to slideframe, for self-wedging clamps)
- 3 off stainless clamp rod
- 2 off stainless clamp rod

Locators

- 3 off sliding tool blocks with threaded holes for vertical clamp and adjustment
- 4 off adjustable rest button, stainless, spherical top
- 2 off additional ridged two-way T-nuts for part location
- 1 off case



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Technical Specification

Technical Specification CNC SYSTEMS

	VI-3030-CNC-XT Venture XT CNC	VP-6460-CNC Venture Plus	VP-6490-CNC Venture Plus
X Y Z measuring range (mm)	300 x 300 x 200	640 x 600 x 250	640 x 900 x 250
Workstage area (mm)	464 x 462	700 x 940	700 x 1240
Max workpiece load (kg)	25	75	75
Drive type	CNC / joystick	CNC / joystick	CNC / joystick
Bearings	Cross roller rail guide	Air bearings	Air bearings
Max drive speed (mm / sec)	200	350	350
Camera type	2048 x 1536 pixel colour USB2 camera with 8 x 9mm chip and dynamic latch		
Optics / lighting	6.5:1 CNC zoom lens. Fully programmable software controlled white LED segmented surface lighting head with understage and through the lens (TTL) lighting as standard		
Optional	12:1 CNC zoom lens option for increased FOV		
Resolution (mm)	0.0005	0.0001	0.0001
Accuracy (µm)	2 + L / 100	2.4 + L / 250 (vol)	2.4 + L / 250 (vol)
Max field of view (FOV) (mm)	16*	16*	16*
Magnification	approx. 30x - 280x according to monitor size and digital zoom		
Touch probe option available	Yes	Yes	Yes
Probe type	Renishaw TP20	Renishaw TP20	Renishaw TP20
Optional		Renishaw SP25 scanning probe	Renishaw SP25 scanning probe
Change rack compatible?	Yes	Yes	Yes

*using optional 0.5x adapter lens

CASE STUDY

VISION SYSTEMS

Beatson Clark Solve "Near-Impossible" Mould Measurement Accuracy Problem with Baty Venture XT Vision System from Bowers Group

Looking for ways to improve the inspection of its critical components, Beatson Clark sought the help of Bowers Group.



the XT is also utilised to qualify machinist's work, allowing for all components that make up a tooling set to be inspected along the manufacturing process.

Fast, Accurate, and user Friendly

Daryl Fletcher, Mould Shop Manager at Beatson Clark, said:

“The vision system is very impressive. It is fast, accurate, and user friendly. Being able to import DXF files gives us the option of comparison as well as direct measurement. The software is intuitive and easy to use, yet very powerful with recognising features and alignment. We can very quickly give basic training to many users, so we are not reliant on a single person. There is one particular feature on our guide plates that previously was near-impossible to measure with any sort of accuracy and repeatability. The Baty now makes this measurement very easy and has already proved its worth.”

The Venture XT has a 300mm x 300mm x 200mm XYZ stage and includes a controller and two 19-inch monitors. With its simple teach and repeat process, the powerful CNC model takes the power of fusion software one step further by completely automating the inspection process. This allows advanced features, such as scanning and best fitting, to be done quickly without taking up the time of skilled operators.

The critical features that make up the neck equipment are extremely difficult to measure with any form of accuracy using traditional equipment, leading to the inspection of components being both difficult and time-consuming. The XT now renders the process simple and reliable with its ability to measure with complete accuracy, ensuring good tooling through to the moulding machines which translates into fewer quarantined products.

A Great Addition

Speaking of the success of the Venture system, Daryl said:

“The Baty Venture 3030 has been a great addition to Beatson Clark. So far it has improved speed and accuracy when inspecting the mould components that has translated to improvements in production, and we are still finding uses for it due to its ease of use and versatility. As a previous user of Baty, I was pleased to see that the team has continued to be extremely professional with good communication from the start and everything promised has been delivered. The ongoing support and backup have been excellent.”

Quality, Flexibility and Innovation

One of the UK's largest manufacturers of pharmaceutical glass containers, Beatson Clark has been designing and manufacturing glass bottles and jars for 270 years and is still leading the way in quality, flexibility and innovation.

Whilst constantly striving to provide superior performance in its quality and service, the company also has an ongoing commitment to continuous improvement, investing in future technologies.

Food, Pharmaceutical and Beverage Markets

Offering a wide range of glass containers for the food, pharmaceutical and beverage markets, and working with clients such as Gaviscon, Hendricks and Baxters, the products Beatson Clark produce must be of the highest quality to protect its reputation and that of its customers' brands.

As highly specified tooling is the start to the process at Beatson Clark, an improved inspection system was the next logical step in its evolution as the company looks for improvements across the whole factory. The Baty Venture XT offered the ideal solution for its unique measurement requirements for presented within its mould shop.

Used every day, primarily by quality department inspectors, the Baty Venture measures components that form the neck area of bottles and jars. These components have many critical dimensions and form the bulk of the systems work, allowing the team to check batch parts thoroughly and ensure only quality components are used in production. With its user-friendly design making the machine quick and easy to learn,

Reprorubber Metrology Grade Casting Material

Why choose Reprorubber?

- Advantages over other hard-copy replicating materials include:
- Quick casting – zero shrinkage
- No release agent required – will not stick to part
- Surface finish replication is exact with excellent optical properties easily checked on an optical comparator or video inspection machine
- Copies can be re-copied from original mould
- Replicas are permanent – will not leach out, ooze out, or gas out
- No more 16 hour cure time as with RTV silicones
- More accurate than all other RTV compounds

Applications

You can take impressions of:

- All metals
- Non metals
- Paper or cardboard items
- Wood, marble etc
- All plastics
- Rubber
- Ceramic and glass items

Other Uses Include

- Prototypes of rubber type components such as gaskets, washers, etc
- Making joints where flexibility is required
- As a mask for high temperature plasma spray of metallic coatings
- Fixturing where semi-rigid structure is desired

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Reprorubber Metrology Grade Casting Material

Quick Dispense Cartridge System Kit

Contains everything you need to easily create highly accurate, zero shrinkage replicas.

Each kit includes 1 each:

- Repru-Mix II reusable dispensing gun
- 6 each 50ml pre-filled Reprorubber disposable cartridges
- 15 disposable mixing nozzles
- 2 micro injector snap-on nozzles
- Deluxe fitted carrying case

Physical advantages over the hard-copy replicas

- Replica is easy to remove – even if they are in under cuts or grooves
- Cross-sectioning of replica is easily accomplished with a knife or razor
- It can then be checked on an optical comparator or microscope
- Surface finish replication is exact with excellent optical properties
- Reprorubber copies can be re-copied (copy from a 'female mould' yields a male-shaped replica)
- Replicas are permanent – will not leach or ooze out nor gas out
- No more 16 hour cure time as with RTV silicones
- More accurate than all other RTV compounds
- Reprorubber putty will withstand up to 600°F (or more)

Original Reprorubber® Thin Pour Final Colour: Light Green

For internal-shape applications where a thin pour will completely fill the cavity without voids. A complete replica casting is quickly formed.

- Pour equal parts of the catalyst and base into the mixing cups and stir for 30 seconds until combined. This is now active and must be poured within 4-4.5 minutes
- Pour the mixture into the cavity and wait for 8-10 minutes for it to cure
- Kits include graduated mixing cups, wooden spatulas and instructions

Original Reprorubber® Quick Setting Putty Final Colour: Light Blue

Excellent for moulding over external shapes, and can also be used for internal cavities where pressure can be applied or a weighted object can be placed on top.

- Roll two equal-sized balls of catalyst putty and base putty and simply knead them together like dough for 30 seconds.
- You can manipulate the putty for 1-2 minutes. Spread over the master, pushing down with fingers and wait for 8-10 minutes for it to cure

New Reprorubber® Orange – Medium Body Pre-filled Cartridges - Final Colour: Orange

New Medium Body (Medium Viscosity – Medium Durometer) casting material ideal for both internal and external applications. Disposable pre-filled dual barrel 50ml cartridges can quickly dispense casting material utilising the REPRO-MIX II Gun System.

- The catalyst and base are extruded from the double-barrelled cartridge in a uniform mixture
- Cover the part with the mixture, the paste can be manipulated for 1-2 minutes
- Cure time is 5-6 minutes



16305

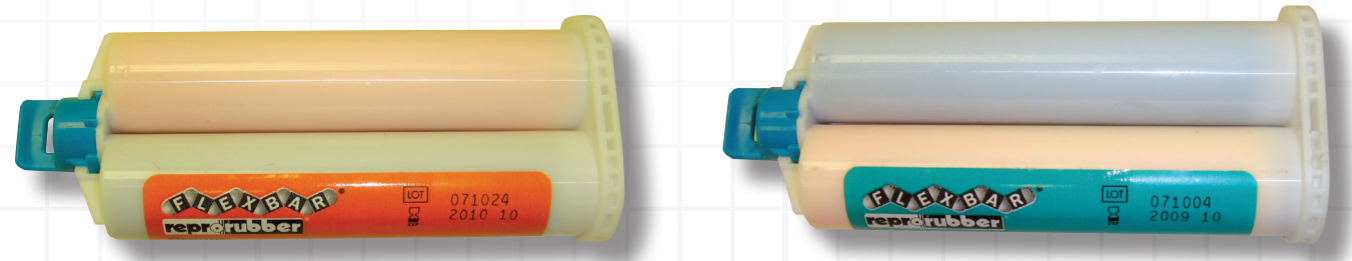


Reprorubber Metrology Grade Casting Material

Projector Type	Reprorubber Thin Pour	Reprorubber Medium Body Orange	Reprorubber Quick Setting Putty
Mixing Time (seconds)	30		30-60
Manipulation Time (minutes)	4-4.5	2.5	2.5-3
Setting Time (at room temperature) (minutes)	8-9	5-6	5-6.5
Permanent Deformation (%)	0.2	0.3	0.3
Dimensional Stability (%)	less than 0.50	less than 0.40	less than 0.25
Tear Strength	44 pounds per sq inch	300 pounds per sq inch	105 pounds
Elongation	60% at break	70% at break	6.3% at break
Durometer (Shore A-2)	30 (at 15 minutes)	40 (at 10 minutes)	50 (at 7 minutes)
Temperature Stability °C / °F	1 week @ 23 / 72	1 week @ 23 / 72	1 week @ 23 / 72
Detail Reproduction	Excellent	Excellent	Excellent

Reprorubber Metrology Grade Casting Material

Reprorubber	
Ordering Complete Kits:	
Code No	Description
16300	Reprorubber Thin Pour (Green) Quick Dispense Cartridge System Kit Complete
16305	Reprorubber Orange (Medium Body) Quick Dispense Cartridge System Kit Complete
16309	Reprorubber Combo Kit Quick Dispense Cartridge System Kit, Includes 3 each Thin Pour & 3 each Orange
Ordering Original Mix Your Own Kits: Original Reprorubber® Thin Pour - Final Colour: LIGHT GREEN	
16116	Thin Pour 130ml Mix Your Own Trial Kit - Final Colour: Light Green
16135	Thin Pour 380ml Mix Your Own Kit - Final Colour: Light Green
16137	Case of 10 each 380ml Mix Your Own Kits - Final Colour: Light Green
Ordering Original Mix Your Own Kits: Original Reprorubber® Quick Setting Putty - Final Colour: LIGHT BLUE	
16129	220ml Trial Quick Setting Putty Mix Your Own Kit - Final Colour: Light Blue
16130	1 3/4 lb (520ml) Introductory Mix Your Own Kit - Final Colour: Light Blue
16131	7lb (2150ml) Economy Mix Your Own Kit - Final Colour: Light Blue
System Refills	
16301	Reprorubber Thin Pour (Green) 50ml Cartridge, 1 each
16302	Reprorubber Thin Pour (Green) 50ml Cartridges, 6 pack
16306	Reprorubber Orange (Medium Body) 50ml Cartridge, 1 each
16307	Reprorubber Orange (Medium Body) 50ml Cartridges, 6 pack
16311	Repro-Mix II Dispensing Gun (reusable)
16313	Repro-Mix II Helix Mixing Nozzles, 15 Pack
16316	Repro-Mix II Helix Mixing Nozzles, 100 Pack
16315	Quick Dispense Cartridge System Fitted Case (without contents)
16314	Micro Injector Snap-On Nozzle, Pack of 15



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Made in Britain

Baty has been in business since 1932 manufacturing optical profile projectors and latterly, camera based vision and multi-sensor systems with CNC control. In 2017, Baty unveiled the FT2-E readout system designed specifically for profile projectors. The FT2-E quickly became Baty's best selling readout option and is now available in a range of retrofit kits for other popular projector brands.

2018 unveiled the Venture XT, the latest update to their range of bench top high precision multi-sensor measuring machines. A large format bridge style multi-sensor machine using the latest 'driveless' linear motor technology and with a first term accuracy of 1.9 microns.

Baty's range of optical profile projectors, vision and multi-sensor systems are still manufactured in England in accordance with ISO 9001:2008 and backed by their team of factory trained service Engineers.

Find Out More

To find out more about Baty please contact us

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