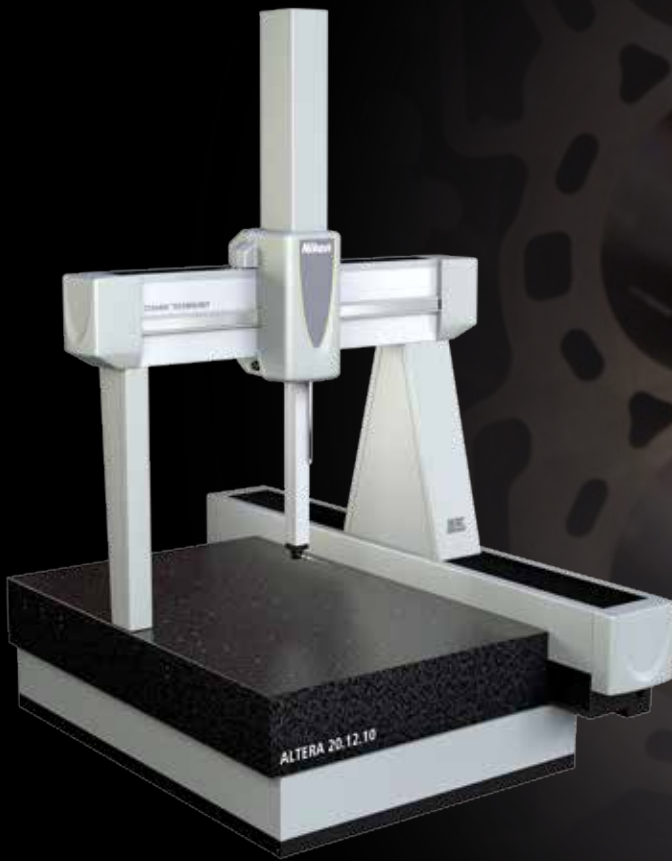




NIKON CMM

Coordinate Measuring Machines



Nikon
100th
anniversary

NIKON METROLOGY | VISION BEYOND PRECISION

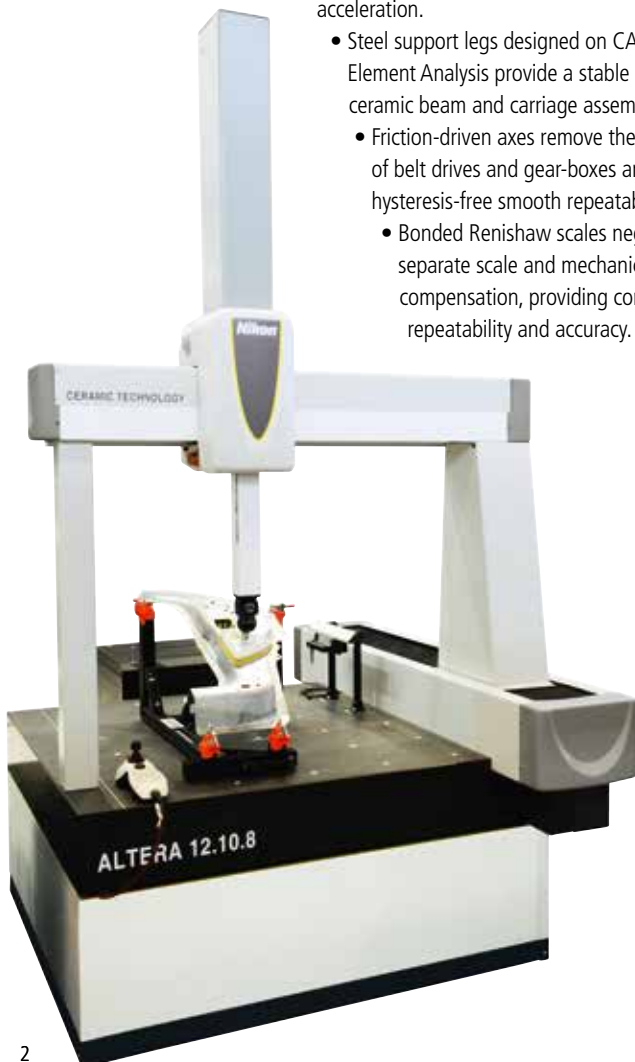
SO MUCH MORE THAN PRECISION

The Nikon Metrology range of Coordinate Measuring Machines represent the ultimate in CMM technology. Designed and manufactured using only the highest quality materials, they carry a heritage of over 50 years experience and expertise.

Nikon Metrology CMMs deliver the ability to perform dimensional, positional and surface measurement in a single system. Combined with a complete range of contact and non-contact sensors, Nikon Metrology CMMs provide true multi-sensor capability. Sensors can be quickly changed to combine geometric and surface measurement into a single inspection routine.

Key design features

- Ceramic bridge and spindle provide a thermally stable and ultra-stiff frame for long lasting accuracy.
- Nikon Metrology unique LK air bearings provide a smaller air gap with greater stiffness than standard air bearings to enhance the rigidity of the frame.
- Granite table with integral dovetail guideway (10.10.8 and bigger) provides the smoothest of drives with high velocity and acceleration.
 - Steel support legs designed on CAD with Finite Element Analysis provide a stable mounting for the ceramic beam and carriage assembly.
 - Friction-driven axes remove the uncertainty of belt drives and gear-boxes and provide a hysteresis-free smooth repeatable motion.
 - Bonded Renishaw scales negate the need for separate scale and mechanical frame thermal compensation, providing confidence in repeatability and accuracy.



Key performance features

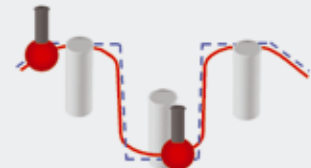
Ceramics for premium performance

Stress-free ceramic guideways are most dimensionally stable, provide high and long-lasting measurement accuracy, and require minimum machine verification, saving both time and money.



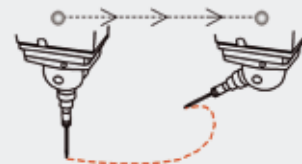
Fly mode

Provides optimized motion control for more efficient machine movement and faster throughput.



PH fast probe motion

Further optimize the machine throughput by moving the probe head simultaneously with machine motion.

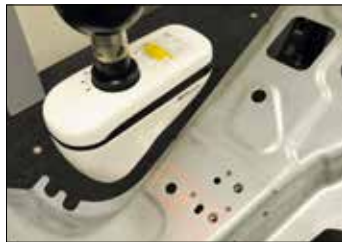


CMM hand-box

Multi-function hand-box provides access to programming tools without returning to the computer.



MULTI-SENSOR PRODUCTIVITY



Scanning made easy

Regardless whether contact or non-contact scanning is required, Nikon Metrology has a solution designed that provides highly repeatable and accurate scanning results for geometric feature and free-form surface inspection.

Unique and unequalled, digital scanning is delivered as standard on every Nikon Metrology LK CMM equipped with either TP20 or TP200 probes. This cost-effective scanning solution enhances traditional CMM inspection to increase productivity.

When accuracy and high speed are expected, Nikon CMMs' ultra-stiff ceramic frame guarantees that continuous contact scanning (SP25M or REVO-2) will provide you feature, form and free-form surface data that is equal to any 'fixed-head' probe system.

Non-contact laser scanning, with the Nikon Metrology L100, LC15Dx, LC60Dx line scanners or XC Cross Scanners, allow you to scan virtually any component with unequalled levels of performance. Suitable for geometric inspection, free-form surface inspection or reverse engineering, laser scanning is available for everyone.

When size truly matters

Nikon Metrology recently manufactured one of the largest CMM bridge sizes with a measuring length and width of 6 meter.

Whether it is a large bridge or a horizontal arm configuration you require, the Nikon Metrology LK range has a standard solution ready for you. Based on the same ceramic and granite construction, the large bridge and horizontal arm CMM range offers market leading accuracy and performance characteristics.



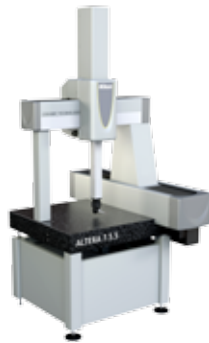
ALTERA BRIDGE CMM

High performance ceramic bridge CMMs

ALTERA's ceramic bridge and spindle components coupled with proven air-bearing design provide the ultimate in stiffness and stability, altogether delivering significantly improved repeatability.



ALTERA+ 10.10.8



ALTERA 7.5.5 (box stand)



ALTERA 20.12.10

Benefits

- Premium performance
- High velocities/accelerations for low cycle times
- Excellent accuracy and repeatability
- Total solution for probing, scanning and digital inspection

Features

- Flexible multi-sensor platform: touch probes, analog scanning and laser scanning
- High capacity (loads) table

Applications

- Machined and pressed parts
- Plastic moldings
- Casting and forgings
- Touch trigger and non-contact inspection
- Digitizing, scanning and reverse engineering

	ALTERA	ALTERA+
Volumetric accuracy	from 1.8 μm + L/400	from 1.5 μm + L/375
Repeatability	from 1.7 μm	from 1.5 μm
Velocity	up to 762 mm/s	up to 833 mm/s
Acceleration	up to 2,303 mm/s ²	up to 2,514 mm/s ²

Full CMM specifications available on request, contact Nikon Metrology for more information.

ALTERA								ALTERA+	
7.5.5	8.7.6	10.10.8	<i>10.12.10</i>	<i>15.15.10</i>	20.15.12	20.15.15	25.20.15	8.7.6	10.10.8
	10.7.6	12.10.8	15.12.10	20.15.10	25.15.12	25.15.15	30.20.15	10.7.6	15.10.8
	15.7.6	15.10.8	20.12.10	25.15.10	30.15.12	30.15.15	35.20.15	<i>15.7.6</i>	20.10.8
	<i>20.7.6</i>	20.10.8	25.12.10	30.15.10	35.15.12	35.15.15	40.20.15		25.10.8
	<i>25.7.6</i>	<i>25.10.8</i>	30.12.10	35.15.10	<i>40.15.12</i>	40.15.15	<i>45.20.15</i>		<i>30.10.8</i>
			<i>35.12.10</i>	<i>40.15.10</i>	<i>45.15.12</i>	<i>45.15.15</i>	50.20.15		<i>35.10.8</i>
			<i>40.12.10</i>	<i>45.15.10</i>	<i>50.15.12</i>	<i>50.15.15</i>	60.20.15		<i>40.10.8</i>
			<i>50.12.10</i>	<i>50.15.10</i>	<i>60.15.12</i>	<i>60.15.15</i>	<i>65.20.15</i>		<i>45.10.8</i>
			<i>60.12.10</i>	<i>60.15.10</i>	<i>70.15.12</i>	<i>70.15.15</i>	<i>70.20.15</i>		
			<i>70.12.10</i>	<i>70.15.10</i>					

Full CMM specifications available on request, contact Nikon Metrology for more information. CMM sizes printed in bold font are standard sizes. CMM sizes in italics are available on request.

ALTERA SL HIGH-SPEED SCANNING BRIDGE CMM

Ultimate scanning and inspection performance

The ALTERA SL features a revolutionary design that delivers the best scanning and inspection performance currently available in the marketplace. Particularly suited to meet the demands of automotive and aerospace applications, the ALTERA SL is a unique and distinctive multi-sensor CMM. With the HA option, such a system becomes a metrology lab reference CMM featuring submicron accuracy for applications requiring highest precision.

ALTERA SL 10.10.8 HA with REVO-2 probe head



ALTERA SL 20.12.10

Benefits

- Increased scanning performance delivering high accuracy and throughput
- Increased stiffness and stability of the metrology frame
- Ready for shop floor and metrology lab

Features

- Granite table with ceramic Y & Z guideways
- Raised X-axis guideway provides ultrafast dynamics
- S-axis 0.1 micron scale
- Multi-sensor capability
- Pneumatic anti-vibration mounts
- Temperature compensation as standard

Applications

- Analog, digital or laser scanning
- Automotive, engine and transmission components
- Aerospace blade, engine and aircraft components
- General precision engineering
- Medical instruments

	ALTERA SL	ALTERA SL HA
Volumetric accuracy	from 1.1 $\mu\text{m} + L/400$	from 0.7 $\mu\text{m} + L/600$
Repeatability	from 1.1 μm	from 0.7 μm
Velocity	up to 850 mm/s	up to 317 mm/s
Acceleration	up to 1,407 mm/s ²	up to 566 mm/s ²

Full CMM specifications available on request, contact Nikon Metrology for more information.

ALTERA SL						ALTERA SL HA		
8.7.6	10.10.8	15.12.10	25.15.10	20.15.15	25.20.15	8.7.6	10.10.8	15.12.10
10.7.6	15.10.8	20.12.10		25.15.15		10.7.6	15.10.8	20.12.10
15.7.6	20.10.8	25.12.10				15.7.6	20.10.8	25.12.10
	25.10.8							

Full CMM specifications available on request, contact Nikon Metrology for more information.

LK V LARGE BRIDGE AND GANTRY CMMS

A new breed of large scale CMMs

Nikon Metrology offers large scale gantry and twin-rail mounted bridge style CMMs when size really matters. In addition to high accuracy with maximum volume, these large scale CMMs support a variety of probing solutions, including touch-trigger digital, analogue and laser options. Nikon Metrology also provides customized gantry CMM projects that meet customers' exacting requirements. LK large scale CMMs are constructed using materials with high thermal stability to guarantee optimum accuracy.



LK V 50.40.12 R



LK V 35.15.15 large bridge CMM

Benefits

- Ceramic material offering 300% more stiffness over aluminium allows for ultra large machine sizes with premium accuracy
- Floor-mounted or raised gantry versions to suit all environments and component handling situations
- Twin drive systems valued for smooth motion
- Available with separate measuring plate if required

Features

- High-performance air bearings
- LK CMMs feature granite rails with ceramic Y and Z guideways
- Supports tactile styli, analogue scanning and laser scanners

Applications

- Automotive and commercial vehicles
- Aerospace components and structures
- Marine and locomotive engine components
- Telecommunications and satellite equipment

	LK V-R	LK V-G(P)
Volumetric accuracy	from 4.5 µm + L/200	from 3.5 µm + L/250
Repeatability	from 4.5 µm	from 3.5 µm
Velocity	up to 533 mm/s	up to 467 mm/s
Acceleration	up to 631 mm/s ²	up to 581 mm/s ²

Full CMM specifications available on request, contact Nikon Metrology for more information.

LK V-R and LK V R-SL - Twin-rail mounted bridge style CMM (short-leg models available)

Sizes ¹	Probe head	Probes
Rail lengths from 3 m to 10 m+	PH10MQ PLUS	TP20
Bridge sizes from 2 m to 4 m	REVO-2	TP200
Spindle lengths from 1.2 m to 3 m		SP25M
<i>(short-leg model with steel legs or concrete riser foundation)</i>		L100, LC15Dx, LC60Dx, XC65Dx (-LS)

LK V-G(P) - High accuracy and ultra high accuracy bridge style CMM

Sizes ¹	Probe head	Probes
Rail lengths from 2 m to 10 m+	PH10MQ PLUS	TP20
Bridge sizes from 4 m to 7 m	REVO-2	TP200
Spindle lengths from 3 m to 4 m		SP25M
<i>(available with steel legs or concrete riser foundation)</i>		L100, LC15Dx, LC60Dx, XC65Dx (-LS)

¹ (other sizes available on request)

LK H HORIZONTAL ARM CMM

The fastest high accuracy horizontal arm CMMs on the market

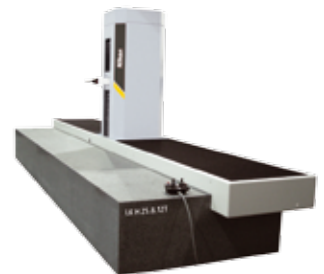
Nikon Metrology's complete range of horizontal arm CMMs provides unequalled performance in speed, accuracy and repeatability. Ceramic guideways and air bearings used in the construction of LK H CMMs, offer stability at high velocity and acceleration. LK horizontal arm CMMs provide unique access to the measuring envelope and can be supplied as subfloor or floor level installations, or as part of fully-automated measurement cells.



LK H-R premium series twin-rail mounted horizontal arm CMM with walk-on covers



LK H-R dual column horizontal arm CMM



LK H-T high accuracy table mounted horizontal arm CMM

	LK H-T	LK H-R
Volumetric accuracy	from 1.9 μm + L/250	from 10 μm + L/200
Repeatability	from 1.9 μm	6.0 μm
Velocity	up to 850 mm/s	up to 667 mm/s
Acceleration	up to 3008 mm/s ²	up to 2106 mm/s ²

Full CMM specifications available on request, contact Nikon Metrology for more information.

Benefits

- High velocities/acceleration for low cycle times
- Excellent accuracy and repeatability
- Flexible multi-sensor platform: touch probes, analog scanning, laser scanning

Features

- Multiple CMM configurations available: table, rail, twin, etc.
- Supports laser scanners and touch sensors
- Can be supplied with cast-iron measuring plate if required

Applications

- Automotive full body and panels inspection
- Inspection of large parts such as mold tools, housings, castings, etc.
- Integrated in-line inspection
- Touch trigger and non-contact inspection
- Digitizing, scanning and reverse engineering

LK H-R - high accuracy rail mounted horizontal arm style CMM (single or twin column)

Sizes ¹	Probe head	Probes
Rail lengths from 4 m to 10 m+	PH10MQ PLUS	TP7M
Spindle lengths from 0.4 m to 1.6 m		TP20
Column heights from 2 m to 3 m		TP200B
<i>(available with walk-on or bellow covers for rails)</i>		SP25M
		L100, LC15Dx, LC60Dx, XC65Dx (-LS)






















LK H-T - high accuracy table mounted horizontal arm style CMM

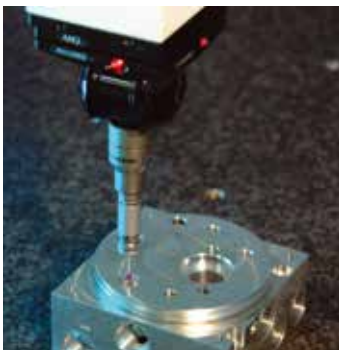
Sizes ¹	Probe head	Probes
Rail lengths from 1 m to 5 m	PH10MQ PLUS	TP20
Spindle lengths from 0.4 m to 1.6 m		TP200B
Column heights from 0.6 m to 2 m		SP25M
		L100, LC15Dx, LC60Dx, XC65Dx (-LS)

¹ (other sizes available on request)

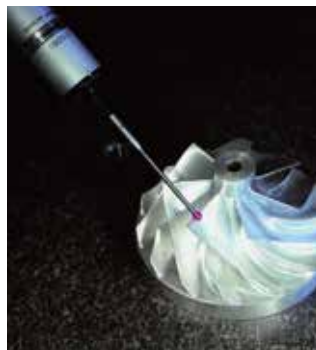
SUPPORTED PROBE SYSTEMS

From traditional single point data collection to state-of-the-art 5 axis measurement incorporating probe head touches, Nikon Metrology supports many different configurations of probe system.

Contact measuring systems									
Manually indexing			Motorized			Dynamic			
Manual probe heads with integral TP20 probe systems		Manual probe head with autojoint connection	Fixed position with autojoint		Motorized probe heads with 720 positions available		Infinite positioning probe head for 5 axis point collection	Infinite positioning probe head for 5 axis multi-point measurement	Fixed probe head with long stylus capability
MH20i	MH20	MIH	PH6M	PH10T PLUS	PH10M PLUS	PH10MQ PLUS	PH20	REVO-2	SP80
									
PH6M	PH6M	TP20	TP200	TP20	TP200	SP25M			
									
		SP25M		TP200	TP200	TP7M			
									
MCR20		MCR20/SCR200/FCR25		MCR20/SCR200/FCR25/MRS-ACR3			MCR20		



High accuracy TP200 touch trigger probe



High speed SP25 scanning probe



REVO-2 5-axis measurement system

Contact Nikon Metrology to check availability of the probe system to each machine model

Non-contact measuring systems

Single and multi-stripe laser

Laser data collection for inspection of features, comparison to nominal CAD data or reverse engineering

PH10M PLUS PH10MQ PLUS



L100



LC15Dx



LC60Dx



XC65Dx / XC65Dx-LS



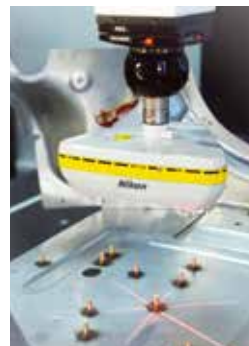
MCR20



Scanning of medical implant



Sheet metal inspection



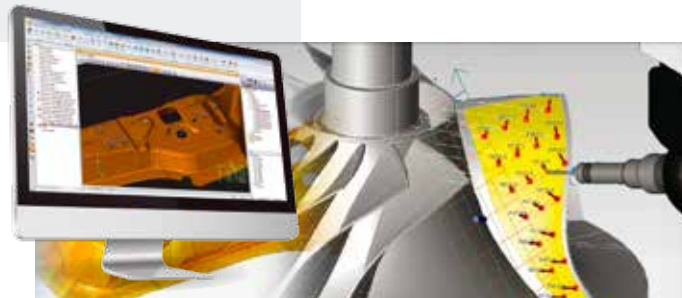
Feature inspection

ALTERA SOFTWARE

Two software options, CMM-MANAGER or CAMIO, lets you choose the software package which best suits your needs. CMM-MANAGER is an easy to use software package with productivity focused intelligence and CAMIO is a powerful multi-sensor software package with advanced capability.

Advanced multi-sensor

CAMIO8 Multi-sensor metrology software



CAMIO is a comprehensive CMM software package, with advanced integrated multi-sensor capability for touch probes, scanning probes and laser scanning. Inspection programs and reports can be created for a wide range of common or specialist applications, both online or offline, using any popular CAD format.

- Industry standard DMIS inspection programs
- Inspect geometric features and full freeform surfaces
- Supports popular CMMs and probe systems via I++ protocol
- Intuitive workflows and powerful ribbon-style interface
- Touch probe, scanning probe and laser scanner integration
- Graphical reporting with SPC and Q-DAS link
- Gear and blade application software
- Production line automation

Easy to use productivity

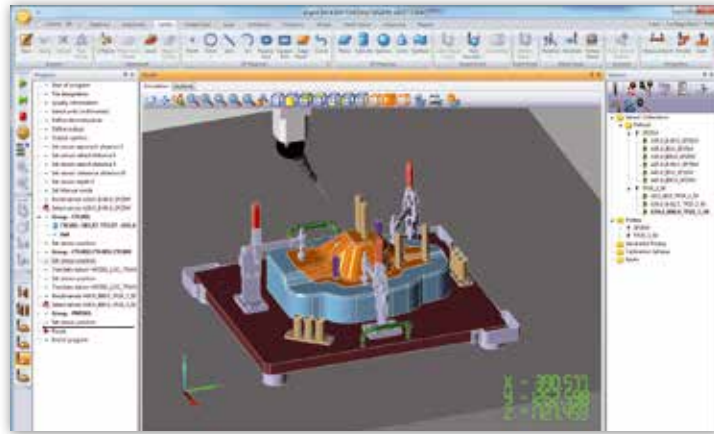
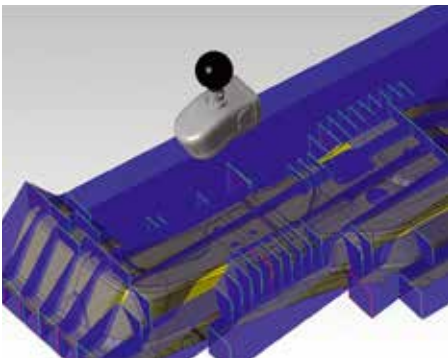
CMM-MANAGER Metrology software for CNC, manual and portable CMM



CMM-MANAGER has been developed to make every step of CMM measurement and reporting as streamlined as possible.

- Walk in, measure and report quick start dimensional checks
- Optimized measurement and probe selection using a single click
- Intelligent graphical reporting with easy-to-understand output formats
- Real-time work piece and probe simulation with smart collision avoidance
- Web-ready reporting for convenient report distribution to a wider audience

CMM software

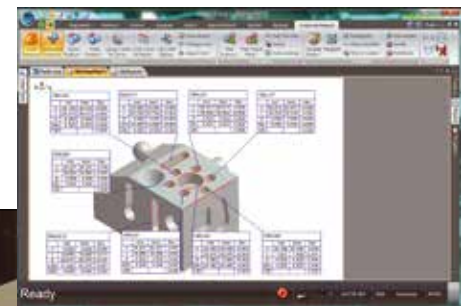
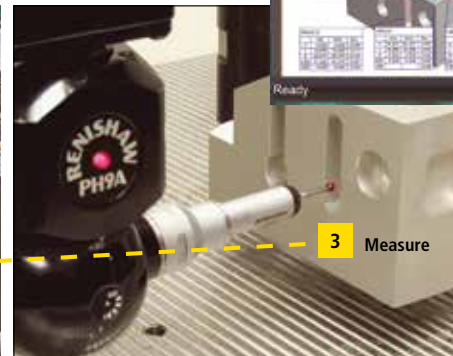
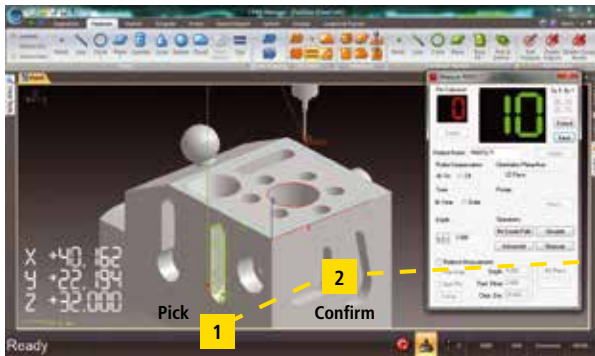


Virtual simulation

CAMIO's powerful CMM programming environment provides full simulation for CMM, work piece and sensor. CMM programs can be optimized and verified for maximum efficiency before the arrival of work piece samples. Reports can be prepared and customized to meet customer specific formats ahead of time for maximum CMM uptime.



focused CMM software



Click-and-measure

Using CMM-Manager's click-and-measure capability, the operator is able to pick any feature on the CAD model.. The software automatically selects the proper probing angle and generates a collision-free path. After the operator confirms the selection, the CMM automatically measures the feature.

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