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Mitutoyo Quality

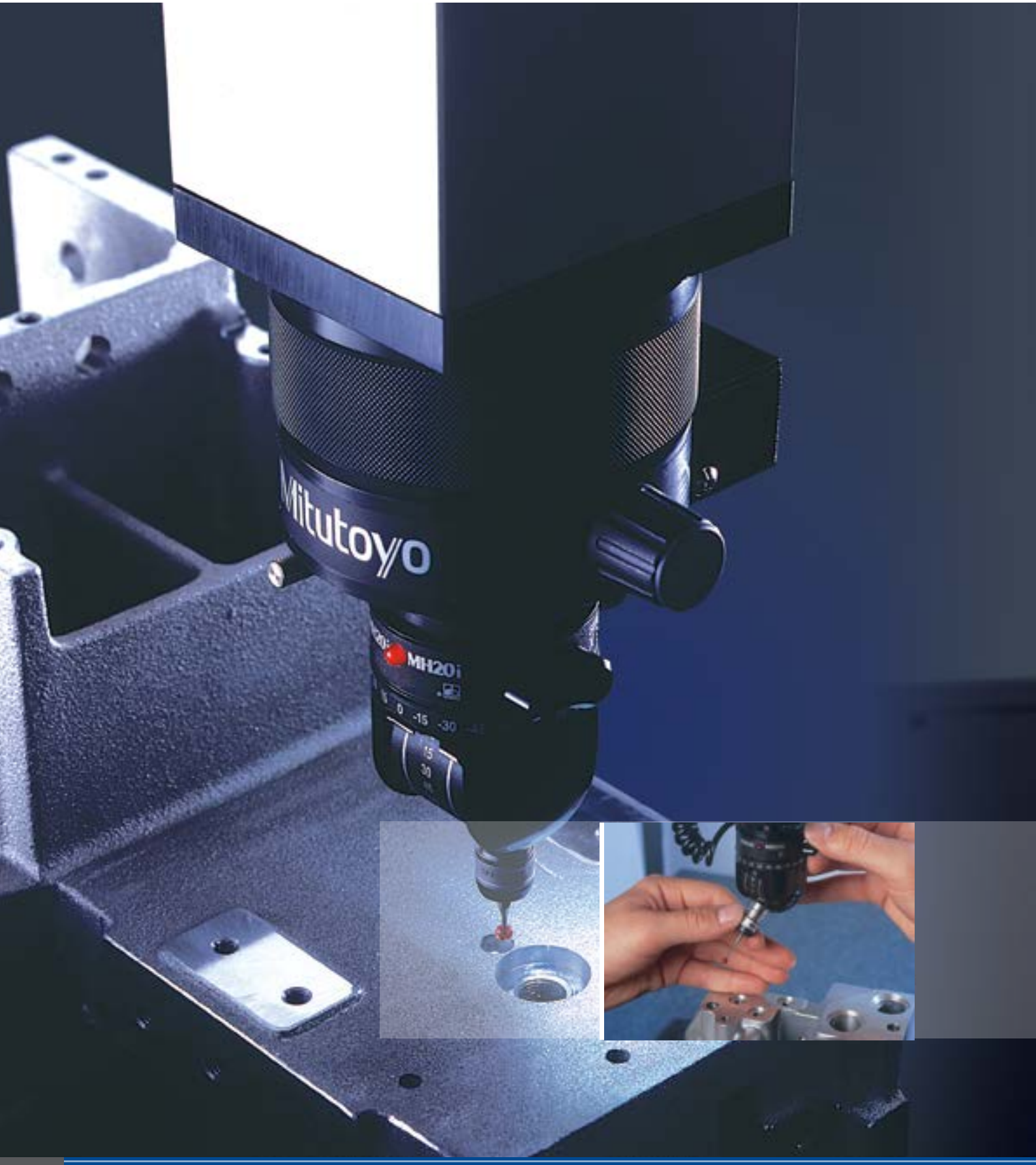
MICROCORD

Crysta-Plus M Series

Manual Coordinate Measuring Machine

COORDINATE MEASURING MACHINES

Crysta-Plus M:
More quality, right down to the very last detail.

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All-in-all the most economical solution

Construction Maintains High Accuracy for Long Periods

The Crysta-Plus M series features the world's highest measuring accuracy in manual coordinate measuring machines. The main unit base is manufactured from high-reliability Graplate (precision granite surface plate), which provides high-rigidity construction with extremely-small secular change by integrating the Y-axis guide rail with the measuring table.
X-, Y- and Z-axis guides are equipped with high-accuracy air bearings to provide excellent linearity and sliding smoothness to that the operator can move the stylus around the workpiece with minimum effort. The length measuring system of each axis employs a high-accuracy glass scales and linear encoders to enable long-term accuracy stability combined with negligible maintenance requirements apart from normal servicing.

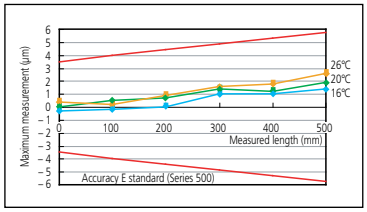
Each Axis Clamp Switch and X/Y Fine Feed Knob

The X, Y and Z axes can be individually clamped with a one-touch air clamp. Each axis can be finely adjusted over the entire measuring range when in the clamped state.
In the Crysta-Plus M443/M500 series, the X- and Y-axis fine-feed knobs are grouped together on the front of the main unit for convenience. When the centering microscope CF20 is installed, for example, these knobs allow easy and precise positioning without causing the operator strain or forcing an uncomfortable posture.

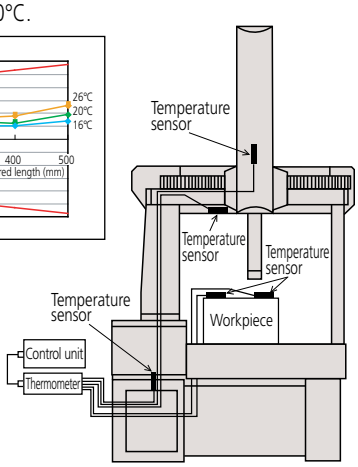
The Crysta-Plus M700 series is provided with a coarse-feed knob for each axis (18.85mm/revolution) as well as fine feed (0.99mm/revolution) to enable easy handling of this larger machine. Additionally, adoption of the Mobile Clamp Box allows the operator to perform clamping operations on each axis from just one location.

Temperature Compensation Function

The Crysta-Plus M series is standard equipped with the temperature compensation function. This function uses multiple sensors to assure maintenance of the specified accuracy over the wide operating temperature range of 15 to 30°C.

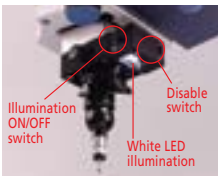


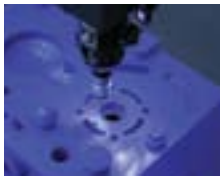
Temperature sensors



Handy Illuminator and Disable Switch

- In order to greatly improve workability during measurement of fine geometry or a deep hole, the white LED illuminator can be installed. (Option)
- In order to prevent unintentional triggering of the probe when changing the probe orientation or replacing a stylus, an ON/OFF switch (Disable switch) is provided on the probe holder. (Standard)

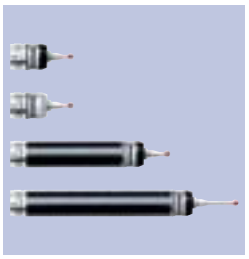




Probes

Touch-trigger Probe MH20

Touch-trigger Probe MH20i



Probe modules

Centering Microscope CF20

Repeatability	2σ≦0.35µm (When using standard stylus)
Trigger force	XY: 0.08N Z: 0.75N

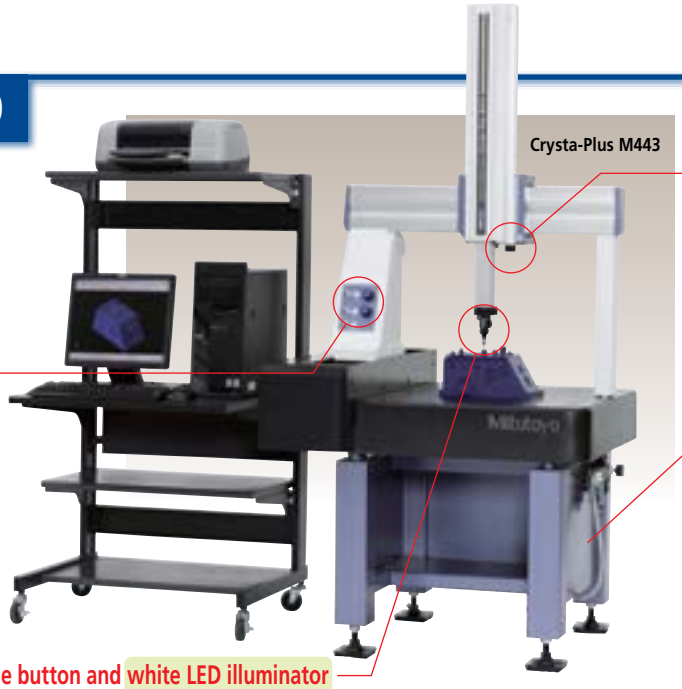
The centering microscope is best suited to measuring a small hole into which a stylus cannot be inserted, plastic or rubber items or a thin workpiece which would be deformed by contact with a touch-trigger probe stylus.
Note: The auxiliary weight set is required if the CF20 is installed.

High operability, cost effectiveness, environmental resistance and performance

Series M443/M500

Required option

Option



Continuous fine feed over the entire Z-axis measuring range

Clamp switch and fine feed knob on each axis
(Continuous fine feed operates over the entire range)

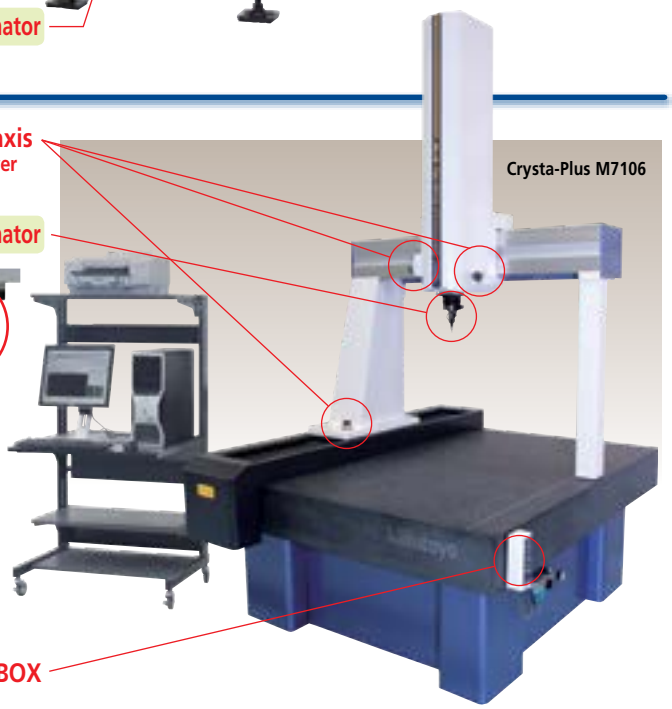
Machine stand / Accessory storage

Interchangeable probe, probe disable button and white LED illuminator

Series M700

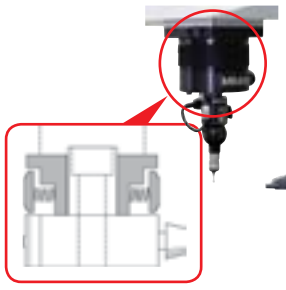
Fine/Coarse feed knob on each axis
(Continuous fine/coarse feed operates over the entire measuring range)

Interchangeable probe, probe disable button and white LED illuminator



Constant grip

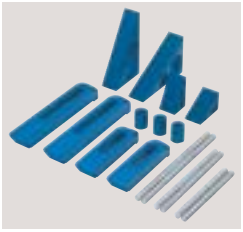
A constant-force handgrip is installed at the lower end of the ram to limit the force applied by the operator during operation, thus improving repeatability of measurement.



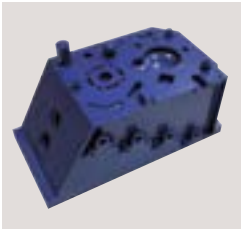
Constant-force handgrip

Mobile clamp switch BOX

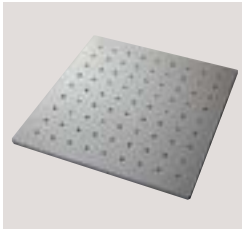
Application



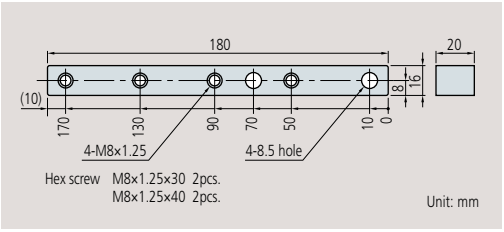
Clamping kit



Workpiece



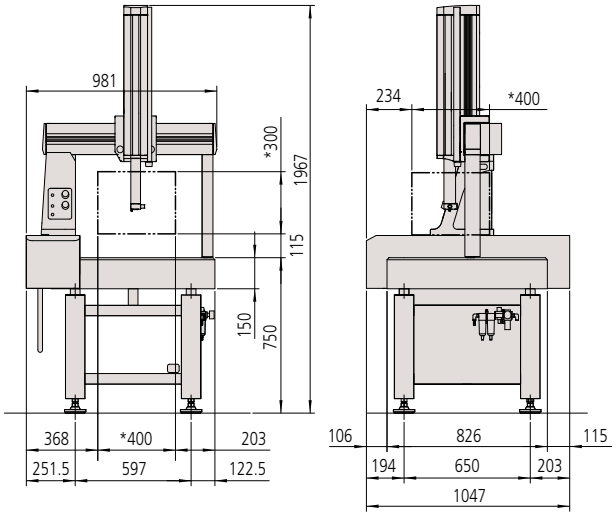
Sub-plate



Extension arm set

Crysta-Plus M443

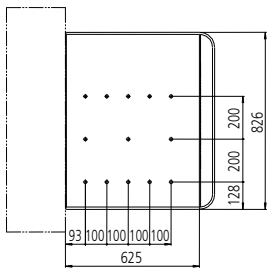
Dimensions (Main Unit)



Unit: mm

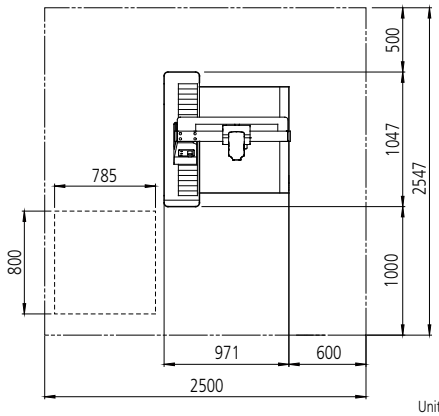
	Crysta-Plus M443
Mass of main unit	360kg
Mass of machine stand	50kg

Dimensions (Measuring Table)



Unit: mm

Installation floor space



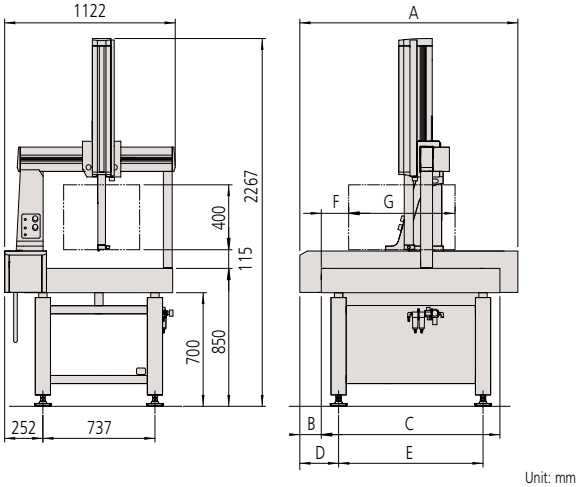
Unit: mm

*Pictures and dimensions shown in this page are an example of system configuration.
Contact the dealer or the nearest Mitutoyo sales office for detail of the system configuration.

Crysta-Plus M544 / M574

Crysta-Plus M574

Dimensions (Main Unit) Crysta-Plus M544 / M574



Unit: mm

	Crysta-Plus M544	Crysta-Plus M574
Mass of main unit	450kg	575kg
Mass of machine stand	62kg	71kg

	Crysta-Plus M544	Crysta-Plus M574
A	1099mm	1434mm
B	106mm	141mm
C	875mm	1175mm
D	220mm	255mm
E	650mm	950mm
F	180mm	180mm
G	400mm	700mm

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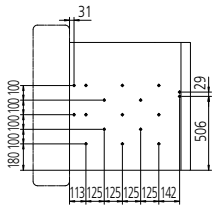
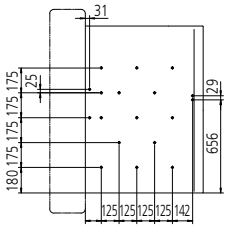
Dimensions (Measuring Table)

Crysta-Plus M544



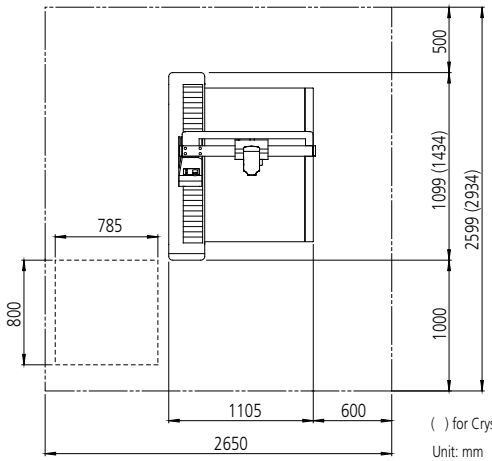
Unit: mm

Crysta-Plus M574



Unit: mm

Installation floor space Crysta-Plus M544 / M574



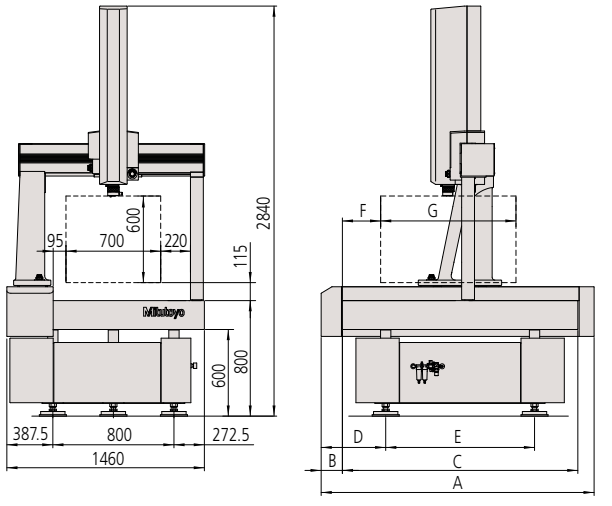
( ) for Crysta-Plus M574

Unit: mm

Crysta-Plus M776 / M7106

Crysta-Plus M7106

Dimensions (Main Unit) Crysta-Plus M776 / M7106



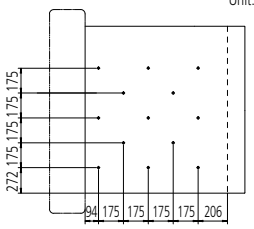
Unit: mm

	Crysta-Plus M776	Crysta-Plus M7106
Mass of main unit (including machine stand)	1560kg	1800kg

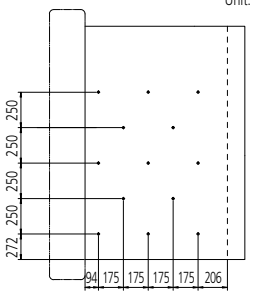
	Crysta-Plus M776	Crysta-Plus M7106
A	1717mm	2017mm
B	157mm	157mm
C	1440mm	1740mm
D	320mm	370mm
E	800mm	1000mm
F	283mm	283mm
G	700mm	1000mm

Dimensions (Measuring Table)

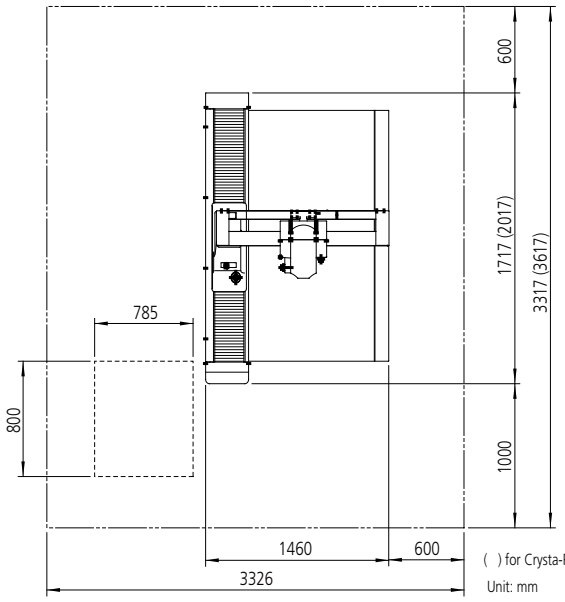
Crysta-Plus M776 Unit: mm



Crysta-Plus M7106 Unit: mm



Installation floor space Crysta-Plus M776 / M7106



( ) for Crysta-Plus M7106

Unit: mm

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Crysta-Plus M443 / M500 / M700 Series Specifications

Specifications

Item \ Model		Crysta-Plus M443
Measuring range	X axis	400mm
	Y axis	400mm
	Z axis	300mm
Resolution		0.0005mm
Accuracy (20°C) ISO 10360-2 *1, *2	Measuring error (E)	(3.0+4L/1000)µm *3
	Probing error (R)	4.0µm
Temperature compensation function		Standard
Length standard		Linear encoder
Guide method		Air bearing on each axis
Clamping on each axis		One-touch air clamp
Fine feed of each axis		Continuous fine feed over the entire measuring range on each axis
Measuring table	Effective size	624mm×805mm
	Material	Granite
Workpiece	Maximum height	480mm
	Maximum mass	180kg
Z-axis balancing method		Counterweight (adjustable by 1.5kg)
Machine dimensions	Width	981mm
	Depth	1047mm
	Height	1967mm
Mass of main unit (including machine stand)		410kg
Air supply	Pressure	0.35MPa (air source: 0.5-0.9MPa)
	Consumption (Under normal conditions)	50L/min (air source: 100L/min)

Specifications

Item \ Model		Crysta-Plus M544	Crysta-Plus M574
Measuring range	X axis	500mm	
	Y axis	400mm	700mm
	Z axis	400mm	
Resolution		0.0005mm	
Accuracy (20°C) ISO 10360-2 *1, *2	Measuring error (E)	E= (3.5+4L /1000)µm *3	
	Probing error (R)	4.0µm	
Temperature compensation function		Standard	
Length standard		Linear encoder	
Guide method		Air bearing on each axis	
Clamping on each axis		One-touch air clamp	
Fine feed of each axis		Continuous fine feed over the entire measuring range on each axis	
Measuring table	Effective size	764mm×875mm	764mm×1175mm
	Material	Granite	
Workpiece	Maximum height	595mm	
	Maximum mass	180kg	
Z-axis balancing method		Counterweight (adjustable by 1.5kg)	
Machine dimensions	Width	1122mm	
	Depth	1099mm	1434mm
	Height	2267mm	
Mass of main unit (including machine stand)		512kg	646kg
Air supply	Pressure	0.35MPa (air source: 0.5-0.9MPa)	
	Consumption (Under normal conditions)	50L/min (air source: 100L/min)	

Specifications

Item \ Model		Crysta-Plus M776	Crysta-Plus M7106
Measuring range	X axis	700mm	
	Y axis	700mm	1000mm
	Z axis	600mm	
Resolution		0.0005mm	
Accuracy (20°C) ISO 10360-2 *1, *2	Measuring error (E)	E= (4.5+4.5L /1000)µm *3	
	Probing error (R)	5.0µm	
Temperature compensation function		Standard	
Length standard		Linear encoder	
Guide method		Air bearing on each axis	
Clamping on each axis		One-touch air clamp (mobile clamp switch BOX)	
Fine feed of each axis		Continuous fine/coarse feed over the entire measuring range on each axis	
Measuring table	Effective size	900mm×1440mm	900mm×1740mm
	Material	Granite	
Workpiece	Maximum height	800mm	
	Maximum mass	500kg	800kg
Z-axis balancing method		Counterweight (adjustable by 1.7kg)	
Machine dimensions	Width	1460mm	
	Depth	1717mm	2017mm
	Height	2840mm	
Mass of main unit (including machine stand)		1560kg	1800kg
Air supply	Pressure	0.4MPa (air source: 0.5-0.9MPa)	
	Consumption (Under normal conditions)	50L/min (air source: 100L/min)	

Guaranteed accuracy temperature limits

Range	15 to 30 °C
Rate of change	2°C per hour or less, 5°C in 24 hours or less
Gradient	1°C or less per meter (both horizontal and vertical direction)

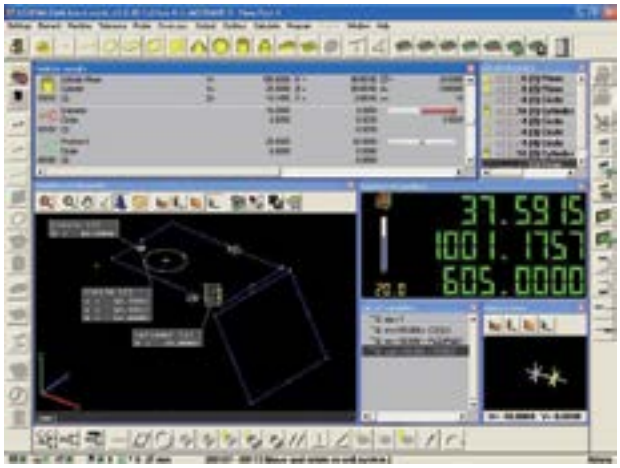
*1: According to ISO 10360-2 methods
*2: When using the touch-trigger probe MH20i/MH20/TP20 and stylus (L10mm)
*3: L=Measured length (mm)
Note: When the appearance of the natural stone measuring table varies according to the source, the high stability for which this material is known can always be relied upon.

Applications that support your measurement tasks

MCOSMOS

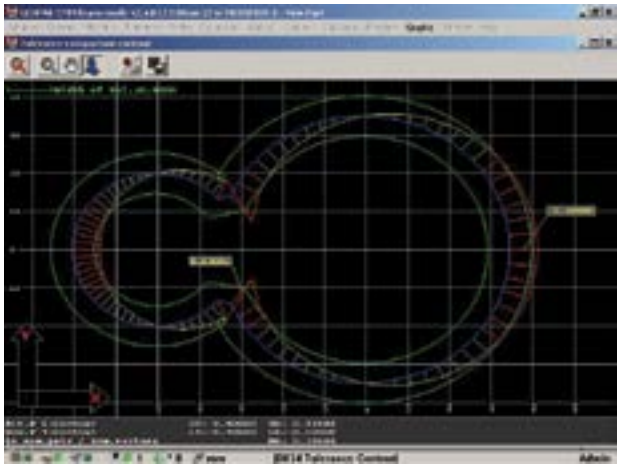
GEOPAK
(High Performance General-Purpose Measurement Program)

This module is the heart of the MCOSMOS software system and is used to measure and analyze geometric elements. All the functions are provided by icons or pull-down menus, freeing users from the need to memorize complex code numbers. It is unnecessary to switch windows for operations, so even novices can promptly select desired functions. Its main features include easier viewing of measuring procedures and results such as realtime graphic display of measurement results and a function for direct callup of elements from results graphics, which were not previously available.
Even if you upgrade to a CNC model in the future, the basic operations remain exactly the same, so you can become familiar with the CNC model's operations just by studying the additional.

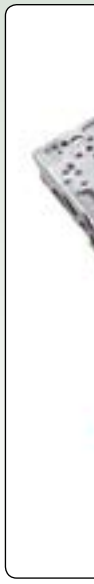


SCANPAK
(Optional Contour Measurement Program)

Measures two-dimensional unfiltered profiles and performs various evaluations. It can evaluate profile measurement data, based on design data, and calculate various elements and inter-elements by specifying a range from the measurement data.



Cutting finished products

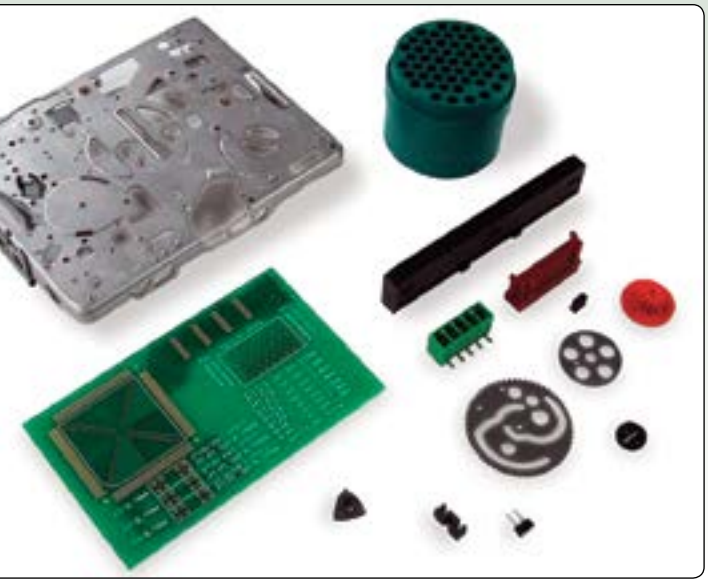


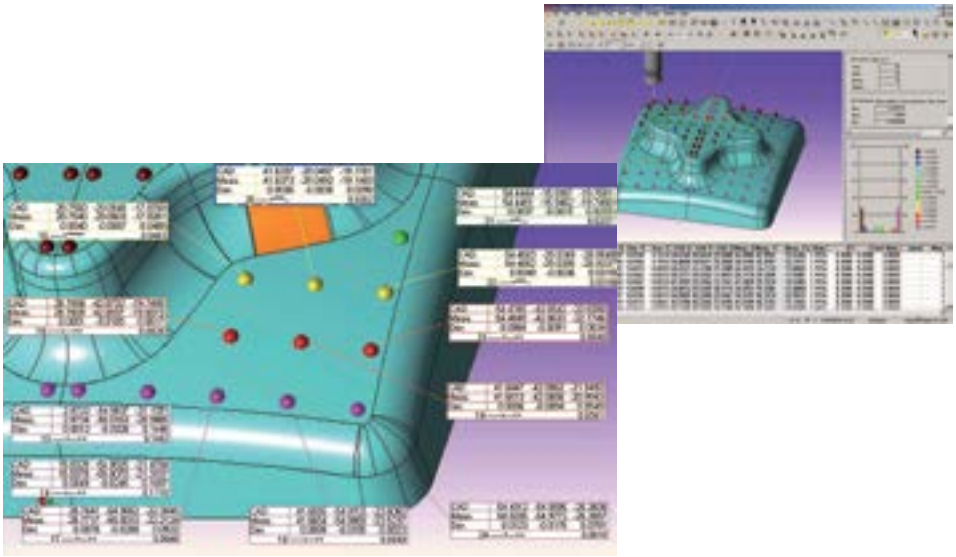
Mitutoyo

MiCAT
Mitutoyo Intelligent Computer Aided Technology
the standard in world metrology software
cmm

Resin molded or plastic formed products

Small parts



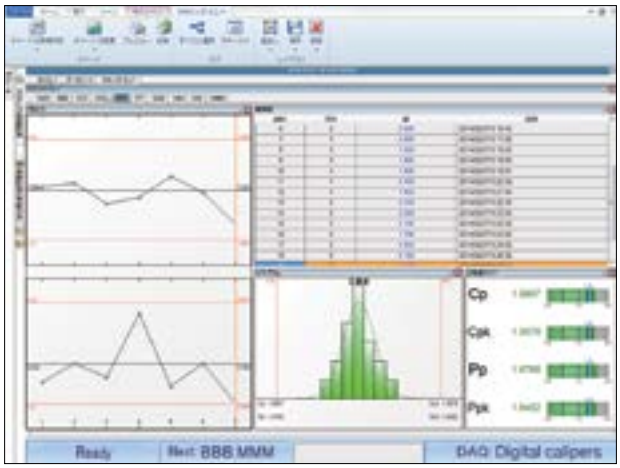


CAT1000S
(Optional Free Curved Surface Evaluation Program)

Checks and compares the workpiece with the CAD data and directly outputs the results in the form of CAD data in various formats. It supports SAT/STEP CAD data as standard, and software to directly convert from/to various types of CAD data is available as an option.

MeasurLink
(Optional Statistical Processing, Process Control Program)

This program can process various statistical analyses based on the measurement results. A real time display of a control chart allows earlier detection of potential defects such as wear or damage to cutting tools. This allows implementation of effective countermeasures including changes in cutting depth and working conditions. Using this program as a terminal, it is also possible to connect to a higher network environment for integrated control.



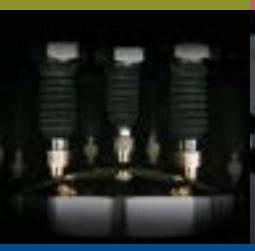
Coordinate Measuring Machines

Vision Measuring Systems

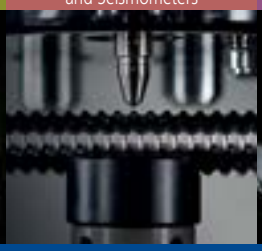
Form Measurement

Optical Measuring

Sensor Systems



Test Equipment and Seismometers



Digital Scale and DRO Systems

Small Tool Instruments and Data Management

Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

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