

## CRYSTA-APEX S SERIES

High-performance, low-price CNC coordinate measuring machine that meets global standards

COORDINATE  
MEASURING MACHINES

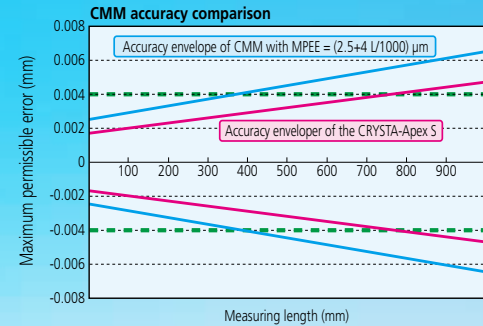


# CNC Coordinate Measuring Machine CR

## High accuracy in the 1.7 $\mu\text{m}$ class

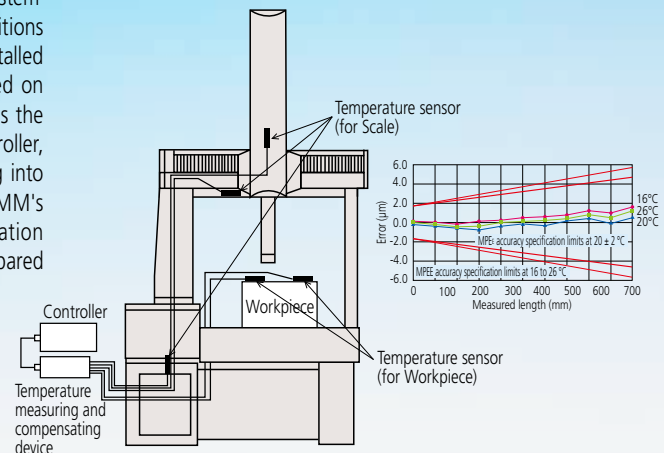
The CRYSTA-Apex S is a high-accuracy CNC coordinate measuring machine that guarantees a maximum permissible error of  $*E_{0,MPE} = (1.7+3L/1000)\mu\text{m}$  [500/700/900 Series]. Let's compare the CRYSTA-Apex S with CMMs offering  $*E_{0,MPE}$  of approximately  $(2.5+4L/1000)\mu\text{m}$ . If, for example, the required tolerance on a dimension is  $\pm 0.02\text{ mm}$ , then the measuring machine uncertainty should be no more than one-fifth (ideally one-tenth) of that, i.e.  $4\mu\text{m}$ . This means that with a general-purpose CMM, when the measured length exceeds  $14.8"$  ( $375\text{mm}$ ), machine uncertainty exceeds one-fifth of the dimension tolerance in this case. In contrast, as shown in the figure on the right, with the CRYSTA-Apex S the measurement uncertainty remains within one-fifth of the dimension tolerance up to  $30.2"$  ( $766\text{mm}$ ). The higher accuracy specification of the CRYSTA-Apex S therefore gives it more than double the effective measuring range in terms of accuracy-guarantee capability in this case.

*\*ISO 10360-2:2009*



## Temperature compensation system

The CRYSTA-Apex S comes equipped with a temperature compensation system that guarantees the accuracy of measurement under temperature conditions of  $60.8$  to  $78.8^\circ\text{F}$  ( $16$  to  $26^\circ\text{C}$ ). This system, based on permanently installed temperature sensors on each scale working together with sensors placed on the workpiece, monitors scale and workpiece temperatures and, monitors the temperature and, before outputting the measurement result to the controller, corrects it to the value that would be measured at  $68^\circ\text{F}$  ( $20^\circ\text{C}$ ), taking into account the workpiece material expansion coefficient as well as the CMM's characteristics. The combined scale/workpiece temperature compensation scheme used on the CRYSTA-Apex S gives markedly superior results compared to systems that only compensate for scale temperature.



## 500 Series



CRYSTA-Apex S 544

## 700 Series



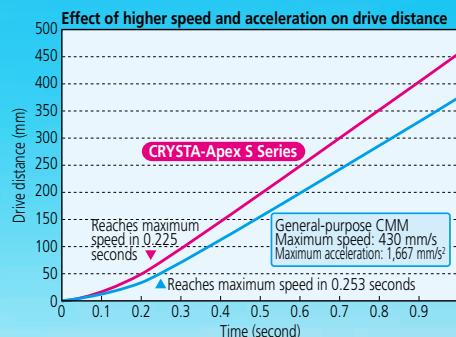
CRYSTA-Apex S 776

# CRYSTA-Apex S Series

## High-speed, high-acceleration drive

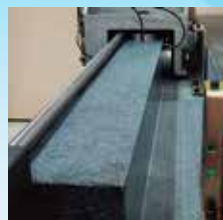
The CRYSTA-Apex S Series offers a maximum drive speed of 519mm/s (20.4"/s) and a maximum acceleration of 2,309mm/s<sup>2</sup> (7.57"/s<sup>2</sup>) [500/700/900 Series], resulting in an increase of almost 100 mm in drive distance in one second, when compared with general-purpose CNC coordinate measuring machines (with a maximum speed of 430mm/s (16.9"/s) and a maximum acceleration of 1,667mm/s<sup>2</sup> (5.46"/s<sup>2</sup>).

Furthermore, with a maximum measuring speed (i.e., the speed with which the stylus traces over the workpiece) of 8mm/s (0.31"/s), the CRYSTA-Apex S produces measurements much more quickly than ordinary CMMs (with a maximum measuring speed of 5mm/s (0.19"/s)). Combining high speed and high acceleration, the CRYSTA-Apex S dramatically reduces measuring time, with the difference between the CRYSTA-Apex S and ordinary CMMs only increasing as the number of measuring points increases, resulting in a significant reduction in measuring cost.



## Designed for high rigidity

As is the case with Mitutoyo's conventional CMMs, various structures are employed in the CRYSTA-Apex S in order to give the body higher rigidity. The Y-axis guide rail, which is attached to one side of the granite surface plate, shows very little deterioration with use, and thus promises to maintain high accuracy for a long time. The air bearings located on the bottom face, in addition to those at the front, rear, and upper surfaces of the slider unit of the X-axis, minimize vibration even during high-speed, high-acceleration movement, thus ensuring stable linear motion.



Integrated Y-Axis in Granite Table



## 900 Series



CRYSTA-Apex S 9106

## 1200 Series



CRYSTA-Apex S 122010

NOTE: PC system & workstation provided are not as shown

## A photograph of a Mitutoyo Coordinate Measuring Machine (CMM) system. The machine is white and blue, with a vertical probe arm. To the left is a PC workstation on a black cart, featuring a monitor, keyboard, and a printer. The Mitutoyo logo is visible on the machine's base.

Note: This machine incorporates a main unit Startup system (relocation detection system), which disables operation when an unexpected vibration is applied or the machine is relocated. Be sure to contact your nearest Mitutoyo Sales Office prior to relocating this machine after initial installation.

## CRYSTA-Apex S 500 Series Accuracy

**CRYSTA-Apex S 500 Series Accuracy** ISO 10360-4

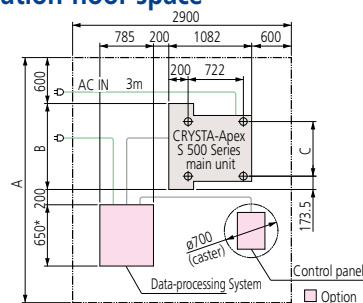
## CRYSTA-Apex S 500 Series Installation Temperature

### CRYSTA-Apex S 500 Series Dimensions unit: inch (mm)

Technical drawing of a base plate. The drawing shows a cross-section of the base plate with a central rectangular opening. The dimensions are labeled as follows:

- D1**: Total width of the base plate.
- D2 (Base size)**: Width of the central rectangular opening.
- D3 (Supporting points)**: Width of the supporting points on either side of the central opening.
- F.L**: Total height of the base plate.
- Y**: Height of the central rectangular opening.

unit: inch (mm)

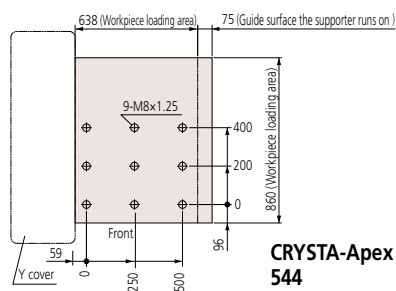


\* When a mouse table is used: 850 mm  
When a 2-monitor dedicated rack is used: 1,000 mm

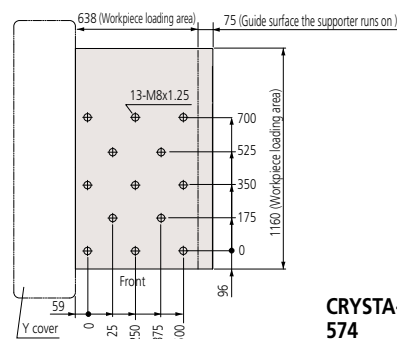
| Model No.               | A          | B           | C           | D1          | D2          | D3          | Y          |
|-------------------------|------------|-------------|-------------|-------------|-------------|-------------|------------|
| <b>CRYSTA-Apex S544</b> | 126°(3200) | 44.2°(1122) | 28.1°(713)  | 44.2°(1122) | 33.9°(860)  | 28.1°(713)  | 16.1°(405) |
| <b>CRYSTA-Apex S574</b> | 138°(3500) | 57.5°(1458) | 39.9°(1013) | 57.5°(1458) | 45.7°(1160) | 39.9°(1013) | 27.8°(705) |

### Measuring table (Tapped insert) Dimensions (unit: mm)

(unit: mm)



**CRYSTA-Apex S**  
**544**

CRYSTA-Apex S  
574

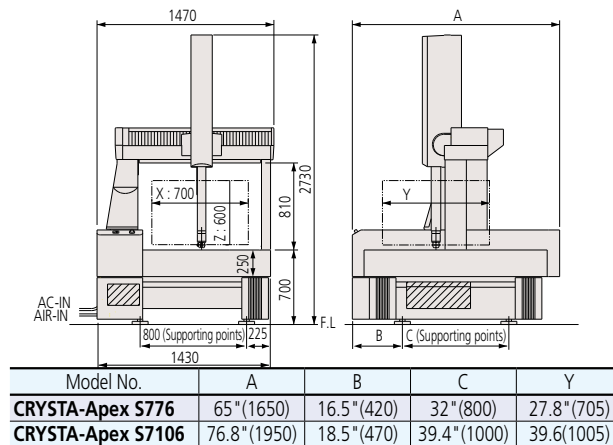
# CRYSTA-Apex S 700 Series



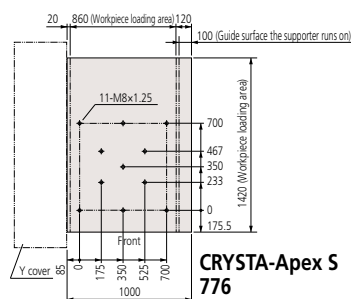
NOTE: PC system & workstation provided are not as shown

Note: This machine incorporates a main unit Startup system (relocation detection system), which disables operation when an unexpected vibration is applied or the machine is relocated. Be sure to contact your nearest Mitutoyo Sales Office prior to relocating this machine after initial installation.

## CRYSTA-Apex S 700 Series Dimensions unit: inch (mm)



## Measuring table (Tapped insert) Dimensions unit: (mm)



| Model No.                                                     |                | CRYSTA-Apex S 776                                                                                                                                     | CRYSTA-Apex S 7106 |
|---------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring range                                               | X axis         | 27.6" (700mm)                                                                                                                                         |                    |
|                                                               | Y axis         | 27.55" (700mm)                                                                                                                                        | 39.36" (1000mm)    |
|                                                               | Z axis         | 23.62" (600mm)                                                                                                                                        |                    |
| Resolution                                                    |                | 0.000004" (0.0001mm)                                                                                                                                  |                    |
| Guide method                                                  |                | Air bearings on each axis                                                                                                                             |                    |
| Drive speed                                                   |                | 8-300mm/s (CNC mode), max. speed: 519 mm/s<br>0 - 80mm/s (J/S Mode: High Speed)<br>0 - 3mm/s (J/S Mode: Low Speed)<br>0.05mm/s (J/S Mode: Fine Speed) |                    |
| Max. measuring speed                                          |                | 8 mm/s                                                                                                                                                |                    |
| Max. drive acceleration                                       |                | 2,309 mm/s <sup>2</sup> (3D)                                                                                                                          |                    |
| Workpiece                                                     | Maximum height | 31.49" (800mm)                                                                                                                                        |                    |
|                                                               | Maximum mass   | 1,763lbs. (800kg)                                                                                                                                     | 2,204lbs. (1000kg) |
| Mass (including the control device and installation platform) |                | 3,692lbs. (1675kg)                                                                                                                                    | 4,301lbs. (1951kg) |
| Air supply                                                    | Pressure       | 58 PSI (0.4MPa)                                                                                                                                       |                    |
|                                                               | Consumption    | 1.76CFM (50L/min) under normal conditions                                                                                                             |                    |
|                                                               | Air source     | 3.53CFM (100L/min)                                                                                                                                    |                    |

## CRYSTA-Apex S 700 Series Accuracy ISO 10360-2 unit: μm

| Probe used                | Maximum permissible error (E <sub>0,MPE</sub> )<br>ISO 10360-2:2009                  | Maximum permissible probing error P <sub>FTU,MPE</sub><br>ISO 10360-5:2010 |
|---------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| SP25M (Stylus: ø4 X 50mm) | 1.7+3 L/1000 (temperature environment 1)<br>1.7+4 L/1000 (temperature environment 2) | 1.7                                                                        |
| TP200 (Stylus: ø4 X 10mm) | 1.9+3 L/1000 (temperature environment 1)<br>1.9+4 L/1000 (temperature environment 2) | 1.9                                                                        |
| TP20 (Stylus: ø4 X 10mm)  | 2.2+3 L/1000 (temperature environment 1)<br>2.2+4 L/1000 (temperature environment 2) | 2.2                                                                        |

\* L = Selected measuring length (in mm). Table on opposite page describes temperature environments 1 and 2.

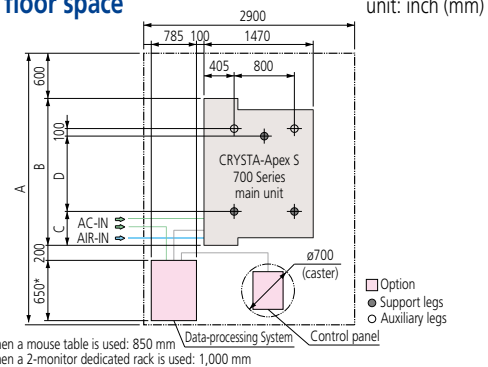
## CRYSTA-Apex S 700 Series Accuracy ISO 10360-4 unit: μm

| Probe used                 | Max. permissible scanning error (MPE <sub>THP</sub> ) |
|----------------------------|-------------------------------------------------------|
| SP25M (Stylus: ø4 X 50 mm) | 2.3μm (50s)                                           |

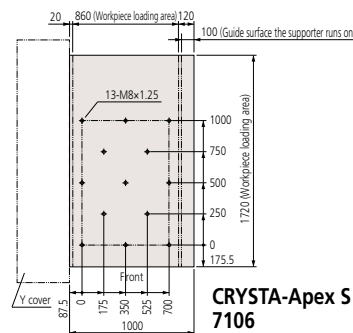
## CRYSTA-Apex S 700 Series Installation Temperature

|                                            |                   | Temperature environment 1                         | Temperature environment 2                         |
|--------------------------------------------|-------------------|---------------------------------------------------|---------------------------------------------------|
| Limits within which accuracy is guaranteed | Temperature Range | 20±2 °C (64.4-71.6 °F)                            | 16 - 26 °C (60.8-78.8 °F)                         |
|                                            | Rate of change    | 2 °C per hour or less<br>2 °C in 24 hours or less | 2 °C per hour or less<br>5 °C in 24 hours or less |
|                                            | Gradient          | 1 °C or less per meter                            | 1 °C or less per meter                            |

## Installation floor space unit: inch (mm)



| Model No.         | A           | B            | C           | D            |
|-------------------|-------------|--------------|-------------|--------------|
| CRYSTA-Apex S776  | 130" (3300) | 65" (1650)   | 16.5" (420) | 32" (800)    |
| CRYSTA-Apex S7106 | 142" (3600) | 76.8" (1950) | 18.5" (470) | 39.4" (1000) |



Mitutoyo

The image shows a Mitutoyo MC Series Coordinate Measuring Machine (CMM). It features a large, dark blue base with the 'Mitutoyo' logo. A white bridge structure spans the base, supporting a vertical probe arm. To the left, a PC workstation is mounted on a black cart with wheels, displaying a software interface on its monitor. The machine is designed for precise measurement of large, complex parts.

Note: This machine incorporates a main unit Startup system (relocation detection system), which disables operation when an unexpected vibration is applied or the machine is relocated. Be sure to contact your nearest Mitutoyo Sales Office prior to relocating this machine after initial installation.

| Model No.                                                     |                | CRYSTA-Apex S<br>9106 / [9108]                                                                                                                         | CRYSTA-Apex S<br>9166 / [9168]             | CRYSTA-Apex S<br>9206 / [9208]             |
|---------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------|
| Measuring<br>range                                            | X axis         | 35.43" (900mm)                                                                                                                                         |                                            |                                            |
|                                                               | Y axis         | 39.36" (1000mm)                                                                                                                                        | 62.99" (1600mm)                            | 78.3" (2000mm)                             |
|                                                               | Z axis         | 23.62" (600mm) / [31.49" (800mm)]                                                                                                                      |                                            |                                            |
| Resolution                                                    |                | 0.000004" (0.0001mm)                                                                                                                                   |                                            |                                            |
| Guide method                                                  |                | Air bearings on each axis                                                                                                                              |                                            |                                            |
| Drive speed                                                   |                | 8 - 300mm/s (CNC mode), max. speed: 519mm/s<br>0 - 80mm/s (I/S Mode: High Speed)<br>0 - 3mm/s (I/S Mode: Low Speed)<br>0.05mm/s (I/S Mode: Fine Speed) |                                            |                                            |
| Max. measuring speed                                          |                | 8mm/s (3mm/s for Type Z800)                                                                                                                            |                                            |                                            |
| Max. drive acceleration                                       |                | 2309mm/s <sup>2</sup> [1732mm/s <sup>2</sup> ] (3D)                                                                                                    |                                            |                                            |
| Workpiece                                                     | Maximum height | 31.49" (800mm) / [39.36" (1000mm)]                                                                                                                     |                                            |                                            |
|                                                               | Maximum mass   | 2,645lbs. (1200kg)                                                                                                                                     | 3,306lbs. (1500kg)                         | 3,968lbs. (1800kg)                         |
| Mass (including the control device and installation platform) |                | 4,919lbs. (2231kg)<br>[4,985lbs. (2261kg)]                                                                                                             | 6,322lbs. (2868kg)<br>[6,389lbs. (2898kg)] | 8,625lbs. (3912kg)<br>[8,691lbs. (3942kg)] |
| Air supply                                                    | Pressure       | 58 PSI (0.4MPa)                                                                                                                                        |                                            |                                            |
|                                                               | Consumption    | 2.11CFM (60L/min) under normal conditions                                                                                                              |                                            |                                            |
| Air source                                                    |                | 3.53CFM (100L/min)                                                                                                                                     |                                            |                                            |

| Probe used                                             | Maximum permissible error ( $E_{0,MPE}$ )<br>ISO 10360-2:2009                        | Maximum permissible<br>probing error ( $P_{FTU,MPE}$ )<br>ISO 10360-5:2010 |
|--------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| SP25M<br>(Stylus: $\varnothing 4 \times 50\text{mm}$ ) | 1.7+3 L/1000 (temperature environment 1)<br>1.7+4 L/1000 (temperature environment 2) | 1.7                                                                        |
| TP200<br>(Stylus: $\varnothing 4 \times 10\text{mm}$ ) | 1.9+3 L/1000 (temperature environment 1)<br>1.9+4 L/1000 (temperature environment 2) | 1.9                                                                        |
| TP20<br>(Stylus: $\varnothing 4 \times 10\text{mm}$ )  | 2.2+3 L/1000 (temperature environment 1)<br>2.2+4 L/1000 (temperature environment 2) | 2.2                                                                        |

|                            |                                                       |
|----------------------------|-------------------------------------------------------|
| Probe used                 | Max. permissible scanning error (MPE <sub>THP</sub> ) |
| SP25M (Stylus: ø4 X 50 mm) | 2.3µm (50s)                                           |

|                                            |                   | Temperature environment 1                         | Temperature environment 2                         |
|--------------------------------------------|-------------------|---------------------------------------------------|---------------------------------------------------|
| Limits within which accuracy is guaranteed | Temperature Range | 20±2 °C (64.4-71.6 °F)                            | 16 - 26 °C (60.8-78.8 °F)                         |
|                                            | Rate of change    | 2 °C per hour or less<br>2 °C in 24 hours or less | 2 °C per hour or less<br>5 °C in 24 hours or less |
|                                            | Gradient          | 1 °C or less per meter                            | 1 °C or less per meter                            |

Technical drawing of the CRYSTA-Apex S 900 Series main unit. The drawing shows the unit's footprint with dimensions in millimeters. The overall width is 3200 mm and the overall height is 600 mm. The unit is labeled "CRYSTA-Apex S 900 Series main unit". Dimensions include 785, 100, 1670, 405, 1000, 600, 100, 200, 650, and 200. The unit is shown with AC-IN and AIR-IN connections. A detail view shows a support leg with a diameter of 700 mm and a caster. A legend indicates that a pink square represents an Option, a black circle represents a Support leg, and an open circle represents an Auxiliary legs.

| Model No.                     | A          | B            | C          | D           |
|-------------------------------|------------|--------------|------------|-------------|
| <b>CRYSTA-Apex S9106/9108</b> | 142°(3600) | 76.8°(1950)  | 18.5°(470) | 39.4°(1000) |
| <b>CRYSTA-Apex S9166/9168</b> | 169°(4300) | 106°(2690)   | 27.6°(700) | 52°(1320)   |
| <b>CRYSTA-Apex S9206/9208</b> | 185°(4700) | 121.7°(3090) | 32°(800)   | 59.1°(1500) |

**(Tapped insert) Dimension**

20 1080 (Workpiece loading area) 120 100 (Guide surface the supporter runs on)

13-M8x1.25

1720 (Workpiece loading area)

1000

750

500

250

175.5

0

225

450

1200

900

Front

CRYSTA-Apex  
9106/9108

Technical drawing of the CRYSTA-9206/9207 support structure. The drawing shows a rectangular layout with dimensions in millimeters. The overall width is 1200 mm, divided into a 20 mm section, a 1080 mm workpiece loading area, and a 100 mm guide surface section. The overall height is 2200 mm, divided into a 175 mm section, a 2000 mm workpiece loading area, and a 175 mm section. The workpiece loading area contains a grid of points with dimensions 225 mm, 150 mm, 1200 mm, 675 mm, and 900 mm. A 23-M8x1.25 screw is indicated. The drawing is labeled CRYSTA-9206/9207.

CRYSTA-Apex S  
9206/9208

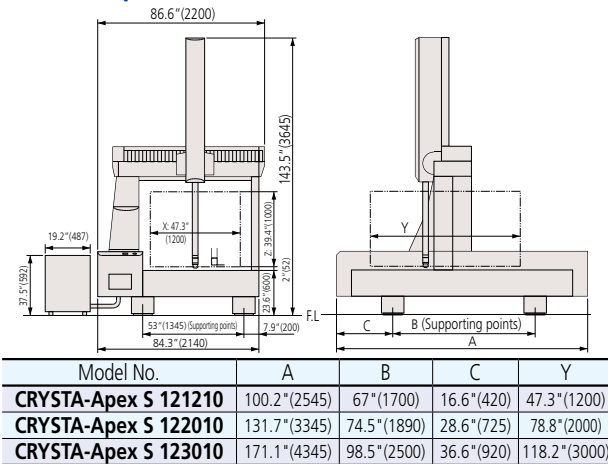
# CRYSTA-Apex S 1200 Series



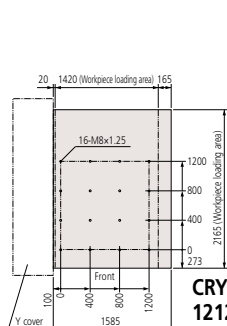
NOTE: PC system & workstation  
provided are not as shown

Note: This machine incorporates a main unit Startup system (relocation detection system), which disables operation when an unexpected vibration is applied or the machine is relocated. Be sure to contact your nearest Mitutoyo Sales Office prior to relocating this machine after initial installation.

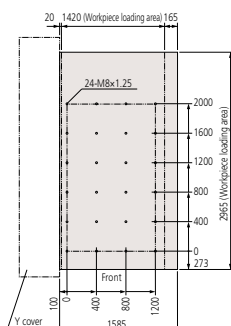
## CRYSTA-Apex S 1200 Series Dimensions unit: inch (mm)



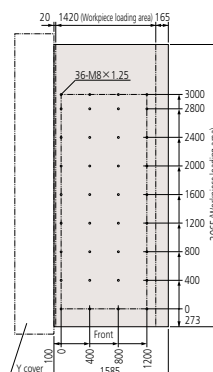
## Measuring table (Tapped insert) Dimensions unit: mm



CRYSTA-Apex S  
121210



CRYSTA-Apex S  
122010



CRYSTA-Apex S  
123010

| Model No.                                                     |                | CRYSTA-Apex S 121210                                                                                                                                        | CRYSTA-Apex S 122010 | CRYSTA-Apex S 123010 |
|---------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|
| Measuring range                                               | X axis         | 47.24"(1200mm)                                                                                                                                              |                      |                      |
|                                                               | Y axis         | 47.24"(1200mm)                                                                                                                                              | 78.73"(2000mm)       | 118.10"(3000mm)      |
|                                                               | Z axis         | 39.36"(1000mm)                                                                                                                                              |                      |                      |
| Resolution                                                    |                | 0.000004"(0.0001mm)                                                                                                                                         |                      |                      |
| Guide method                                                  |                | Air bearings on each axis                                                                                                                                   |                      |                      |
| Drive speed                                                   |                | 8 - 400 mm/s (CNC mode), max. speed: 693 mm/s<br>0 - 80 mm/s (I/S Mode: High Speed)<br>0 - 3 mm/s (I/S Mode: Low Speed)<br>0.05 mm/s (I/S Mode: Fine Speed) |                      |                      |
| Max. measuring speed                                          |                | 5mm/s                                                                                                                                                       |                      |                      |
| Max. drive acceleration                                       |                | 1,732 mm/s <sup>2</sup> (3D)                                                                                                                                |                      |                      |
| Workpiece                                                     | Maximum height | 47.24"(1200mm)                                                                                                                                              |                      |                      |
|                                                               | Maximum mass   | 4,409lbs.(2000kg)                                                                                                                                           | 5,511lbs.(2500kg)    | 6,613lbs.(3000kg)    |
| Mass (including the control device and installation platform) |                | 8,928lbs.(4050kg)                                                                                                                                           | 13,558lbs.(6150kg)   | 20,084lbs.(9110kg)   |
| Air supply                                                    | Pressure       | 58 PSI (0.4MPa)                                                                                                                                             |                      |                      |
|                                                               | Consumption    | 100 L/min under normal conditions (air source: 150 L/min)                                                                                                   |                      |                      |
|                                                               | Air source     | 5.29CFM (150L/min)                                                                                                                                          |                      |                      |

## CRYSTA-Apex S 1200 Series Accuracy ISO 10360-2 unit: μm

| Probe used                | Maximum permissible error (E <sub>0,MPE</sub> ) ISO 10360-2:2009                   | Maximum permissible probing error (P <sub>FTU,MPE</sub> ) ISO 10360-5:2010 |
|---------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| SP25M (Stylus: ø4 X 50mm) | 2.3+3L/1000 (temperature environment 1)<br>2.3+4L/1000 (temperature environment 2) | 2.0                                                                        |
| TP200 (Stylus: ø4 X 10mm) | 2.5+3L/1000 (temperature environment 1)<br>2.5+4L/1000 (temperature environment 2) | 2.2                                                                        |
| TP20 (Stylus: ø4 X 10mm)  | 2.8+3L/1000 (temperature environment 1)<br>2.8+4L/1000 (temperature environment 2) | 2.6                                                                        |

\* L = Selected measuring length (in mm). Table on opposite page describes temperature environments 1 and 2.

## CRYSTA-Apex S 1200 Series Accuracy ISO 10360-4 unit: μm

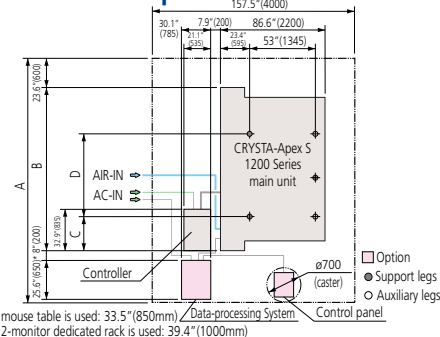
| Probe used                 | Max. permissible scanning error (MPE <sub>THP</sub> ) |
|----------------------------|-------------------------------------------------------|
| SP25M (Stylus: ø4 X 50 mm) | 2.8μm (50s)                                           |

## CRYSTA-Apex S 1200 Series Installation Temperature

|                                            |                   | Temperature environment 1                         | Temperature environment 2                         |
|--------------------------------------------|-------------------|---------------------------------------------------|---------------------------------------------------|
| Limits within which accuracy is guaranteed | Temperature Range | 20±2 °C                                           | 16 - 26 °C                                        |
|                                            | Rate of change    | 2 °C per hour or less<br>2 °C in 24 hours or less | 2 °C per hour or less<br>5 °C in 24 hours or less |
|                                            | Gradient          | 1 °C or less per meter                            | 1 °C or less per meter                            |

## Installation floor space

unit: inch (mm)

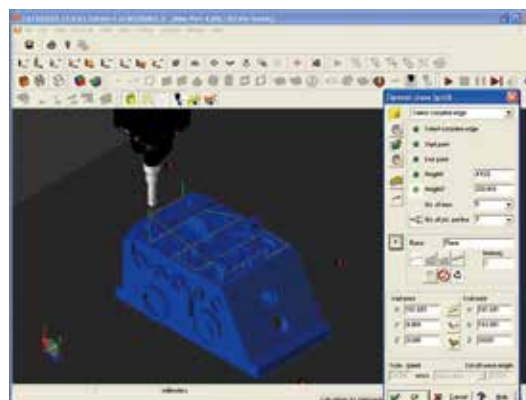


\* When a mouse table is used: 33.5"(850mm) / Data-processing System  
When a 2-monitor dedicated rack is used: 39.4"(1000mm)

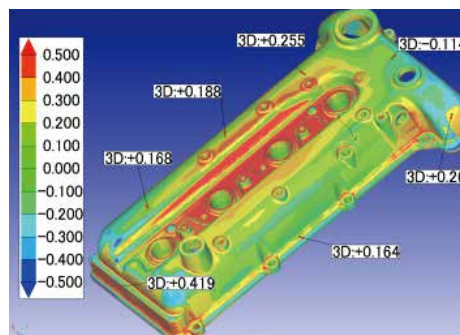
| Model No.            | A            | B            | C          | D           |
|----------------------|--------------|--------------|------------|-------------|
| CRYSTA-Apex S 121210 | 163.2"(4145) | 100.2"(2545) | 16.6"(420) | 67"(1700)   |
| CRYSTA-Apex S 122010 | 194.7"(4945) | 131.7"(3345) | 28.6"(725) | 74.5"(1890) |
| CRYSTA-Apex S 123010 | 234.1"(5945) | 171.1"(4345) | 36.3"(920) | 98.5"(2500) |



(freeform surface evaluation program)



This module enables the user to use CAD data and on-screen simulation to create parts programs for making automated measurements (off-line teaching). This module allows the user to begin creating a parts program as soon as the design data has been finalized, shortening the entire process.

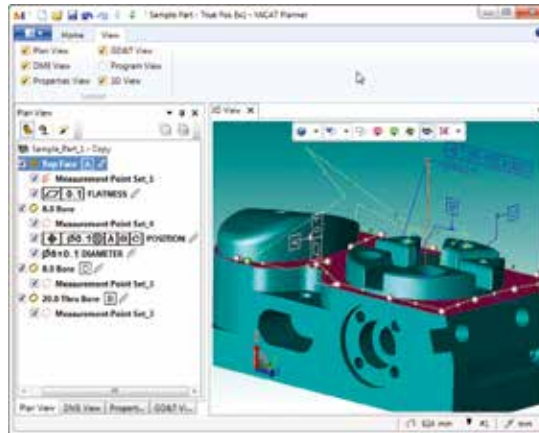


MSURF-S is used for obtaining measured point cloud data with the SurfaceMeasure (non-contact laser probe), while MSURF-I is used for comparing this data with the master model data, and for making dimensional measurements. Furthermore, MSURF-G for offline teaching allows the user to create a measurement macro even without the actual workpiece, improving the measuring machine's uptime.



## GEOPAK (high-functionality 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, 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 call-up of elements from results graphics.



## MiCAT Planner

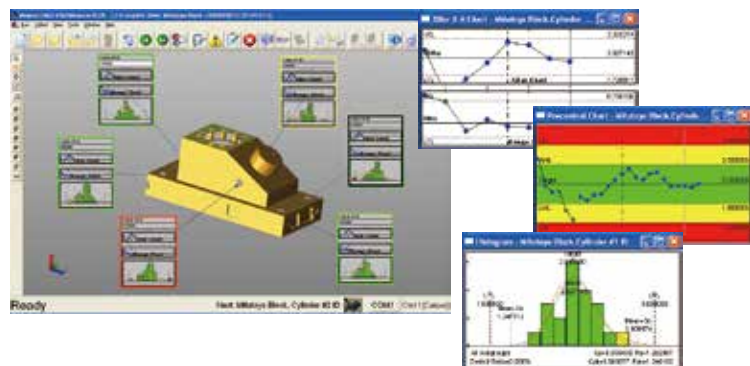
Automatic measurement program generation software that uses 3D CAD with Product & Manufacturing Information (PMI) to enable one-click automated generation of measurement programs. With this program, a complex program that previously would have taken five hours to complete manually can now be completed in 15 minutes.

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



## SCANPAK (contour measurement program)

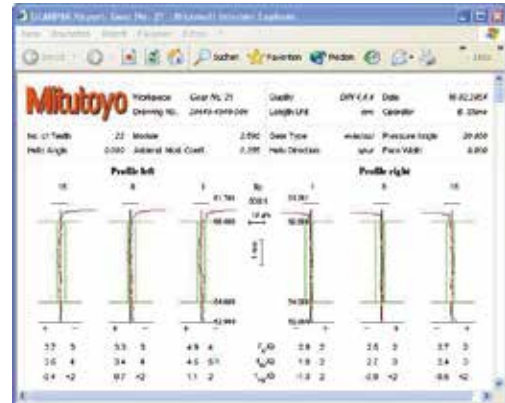
Software for scanning and evaluating workpiece contours (2D). Evaluates contour tolerance between measurement data and design data, and performs various types of element and inter-element calculations based on a desired range of measurement data specified by the user.



## MeasurLink STATMeasure Plus (statistical-processing and process-controlling program)

Performs various types of statistical computations using measurement results. In addition, by displaying a control diagram on a real-time basis, this program allows defects that may occur in the future (e.g., wearing or damaging of cutting tools) to be discovered early on. This program can also be linked to a higher-level network environment to build a central control system.

# Group of options that enable various kinds of measurements



**GEARPAK (gear evaluation program)**  
For evaluating the most types of involute gears.



## UMAP-CMM

This head makes it possible to use an ultra-small diameter stylus (0.1- or 0.3-mm diameter). It can be installed on PH10MQ to measure the shape and dimensions of microfabricated products from multiple directions.



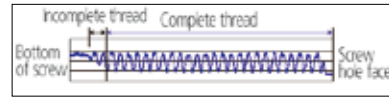
## SurfaceMeasure606 (non-contact laser probe)

Lightweight, high-performance, non-contact probe developed for CNC coordinate measuring machines. Powder spray-less measurement has been achieved through automatic setting of appropriate laser intensity and camera sensitivity according to environment or material, providing a simpler and more comfortable laser scanning environment.



SurfaceMeasure606

Not available for  
Crysta Apex S500 series

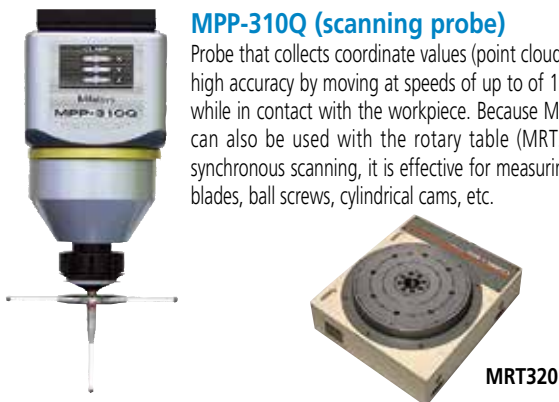


## CMM Surftest Probe (surface roughness measuring)

Mitutoyo has a wide range of surface roughness analysis products from hand-held portable type up to CNC type Surftest with broader functions and higher accuracy. Utilizing the technologies developed on our surface roughness measuring machines, our CMM's can perform surface roughness analysis by implementing a Surftest Probe and the dedicated software. The Surftest probe requires PH10M or PH10MQ probe head.

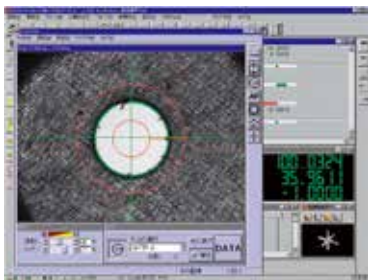
## SP25M (compact high-accuracy scanning probe)

This is a compact, high-accuracy, multi-function scanning probe with a 25-mm outside diameter that makes scanning measurements, high-accuracy point measurements, and centripetal point measurements (optional function). The SP25M is used with the PH10MQ/10M auto probe head to provide a high degree of measurement freedom.



## MPP-310Q (scanning probe)

Probe that collects coordinate values (point cloud data) at high accuracy by moving at speeds of up to of 120 mm/s while in contact with the workpiece. Because MPP-310Q can also be used with the rotary table (MRT320) for synchronous scanning, it is effective for measuring gears, blades, ball screws, cylindrical cams, etc.



## VISIONPAK (vision measurement program)

This program controls QVP and performs various computational analyses on captured images.



## QVP (vision probe)

This probe automatically detects edges from image data of the workpiece magnified by a CCD camera. It is extremely useful for measuring microfabricated products that cannot be measured using a contact-type probe and soft objects that cannot be subjected to any measurement force. The QVP can also be used for measuring height based on autofocus.

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 measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.



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