

CNC COORDINATE MEASURING MACHINES

PRE 1341



Special specifications introduction

CNC Coordinate Measuring Machines

Special specification introduction

Specifications including a large rotary table for highly efficient measurement of large cylindrical workpieces

Based on our well-received standard coordinate measuring machine technology, we have developed, designed, and manufactured coordinate measuring machines using various special specifications in response to customer demands in order to increase customer satisfaction.

This catalog introduces concrete examples of some of the coordinate measuring machines built using these specifications, which are intended to provide support and solutions for expanding your business.

Specifications that offer a special size for measuring various long, large workpieces



Your support has kept us
in business for 40 years.



Specifications that offer a special size for highly accurate measurement of various large workpieces

Mitutoyo

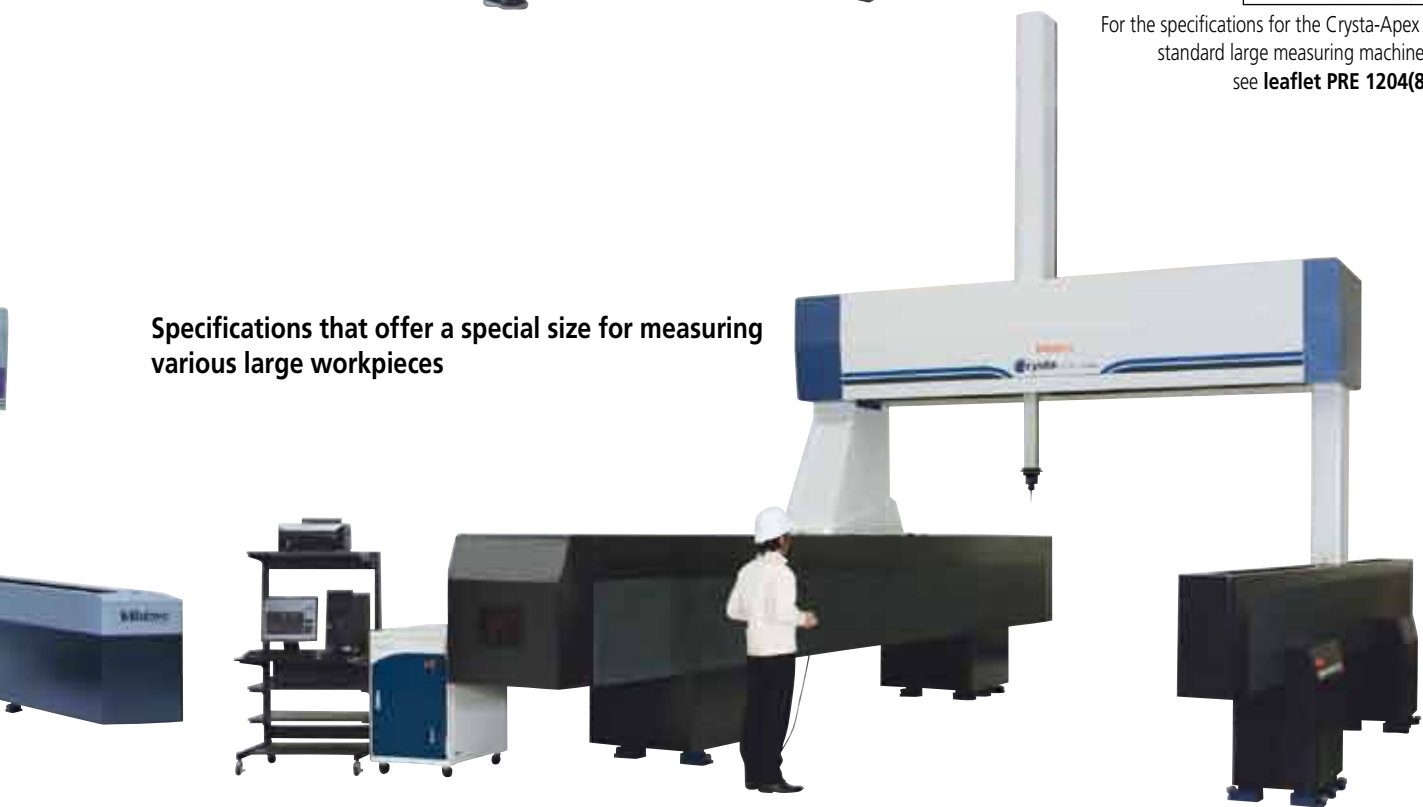
**Bestseller
Crysta-Apex C Series:
standard large machines**

(2005 x 5005 x 1605 mm measuring range)



For the specifications for the Crysta-Apex C standard large measuring machines, see leaflet PRE 1204(8).

Specifications that offer a special size for measuring various large workpieces



Large Separate Guide Type FALCIO Apex Series

Specially sized for highly accurate measurement of various large workpieces

- Large mold measurement (such as a press mold for a car)
- Measurement of aircraft and ship parts
- Measurement of truck, heavy machinery, and construction equipment parts



Main specifications

Model No.	FALCIO Apex						
	203015G	203020G	204015G	303012G	305015G	305020G	406020G
Measuring range (mm)	X	2005			3005		4005
	Y	3005		4005	3005	5005	
	Z	1505	2005	1505	1205	1505	2005
Measuring error MPE _E (μm)	[TP200] (4.8+5L/1000)	[TP200] (9+7L/1000) [SP25M] (7+7L/1000)	[TP200] (4.8+5L/1000)	[TP200] (4.9+5L/1000)	[TP200] (5.5+5L/1000)	[TP200] (9.5+10L/1000) [SP80] (6+8L/1000)	[TP200] (10+10L/1000) [SP25M] (8+8L/1000)
L: measuring length (mm)							
Max. workpiece weight (kg)	Depends on the basic specifications	Depends on the basic specifications	Depends on the basic specifications	Depends on the basic specifications	Depends on the basic specifications	Depends on the basic specifications	Depends on the basic specifications

Large Separate Guide Type FALCIO Apex 30303G

Specially sized for measuring large, thin workpieces



Measurement of a large sheet for an LCD



Main specifications

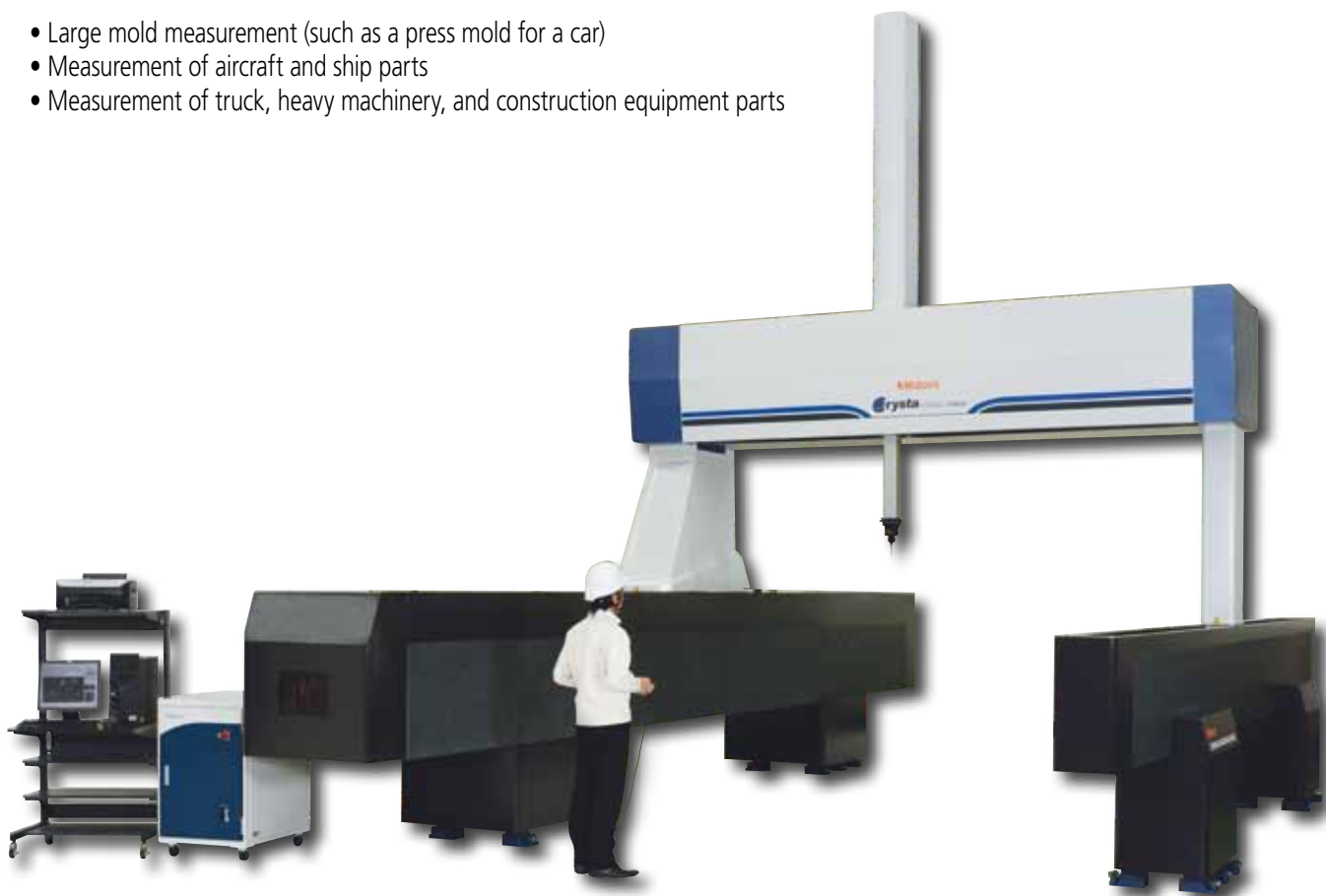
Model No.	FALCIO Apex 30303G
X	3005
Measuring range (mm) Y	3005
Z	305
*Measuring error MPE_E (μm) L: measuring length (mm)	[TP200] ($5.5+5L/1000$)
Max. workpiece weight (kg)	50 (glass table)

* For the accuracy when using the QVP, the error is $4 \mu\text{m}$ or less per meter when using the standard lens ($\times 3$ magnification).

Large Separate Guide Type Crysta-Apex C Series

Specially sized for measuring various large workpieces

- Large mold measurement (such as a press mold for a car)
- Measurement of aircraft and ship parts
- Measurement of truck, heavy machinery, and construction equipment parts



Main specifications

Model No.	Crysta-Apex C	
	203016G	306020G
X	2005	3005
Measuring range (mm) Y	3005	6005
Z	1605	2005
Measuring error MPE _E (μm) L: measuring length (mm)	[TP200] (9+8L/1000) [SP25M] (6+8L/1000)	[TP200] (11+9L/1000) [SP25M] (8+9L/1000)
Max. workpiece weight (kg)	Depends on the basic specifications	Depends on the basic specifications

Large Separate Guide Type Specifications including a large rotary table

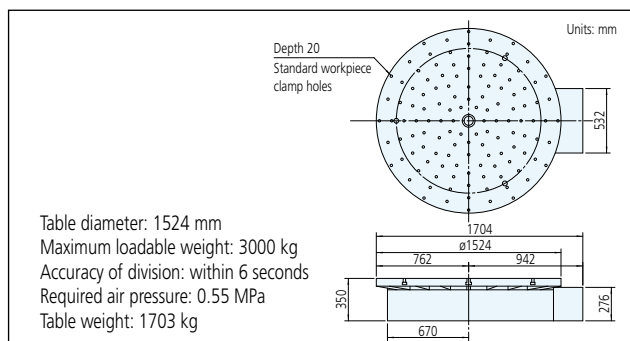
Specifications including a large rotary table for highly efficient measurement of large cylindrical workpieces

Highly efficient measurement of large aircraft engine parts

(* Synchronized scanning measurement is not supported.)



Main specifications and external dimensions of the large rotary table



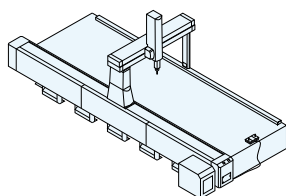
Main specifications

Model No.	Crysta-Apex C203016G	
	Includes a rotary table (ø1500mm)	
Measuring range (mm)	X	2005
	Y	3005
	Z	1605
*Measuring error MPE_E (μm)	[TP200]	
L: measuring length (mm)	(9+8L / 1000)	
Max. workpiece weight (kg)	3000 (depends on the rotary table specifications)	

Crysta-Apex C700/900 Series

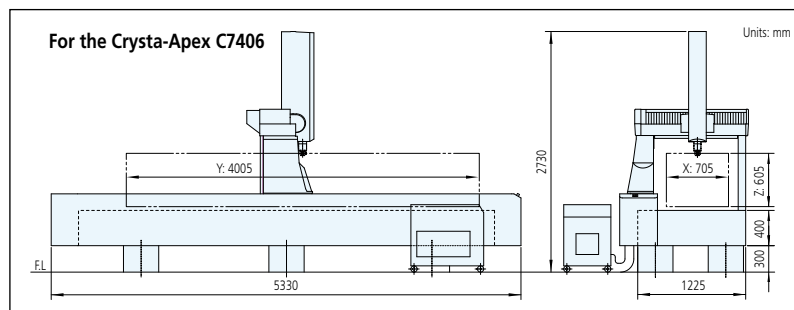
Specially sized

Specially sized for measuring various long (large) workpieces



Application example: highly accurate evaluation of straightness by using inversion

By measuring a straightness master in advance and then calculating the straightness error in three-dimensional space, you can perform high accuracy straightness evaluation.



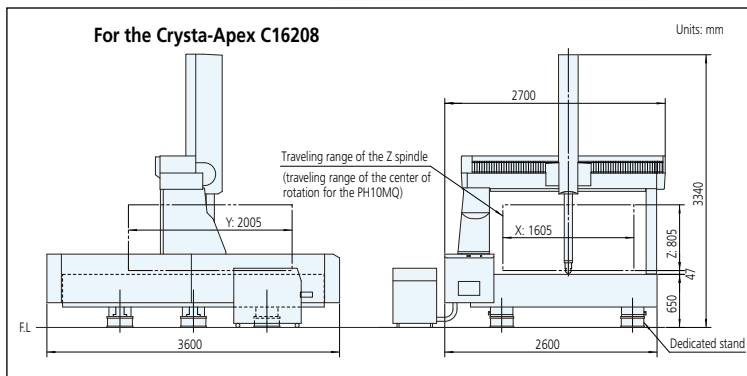
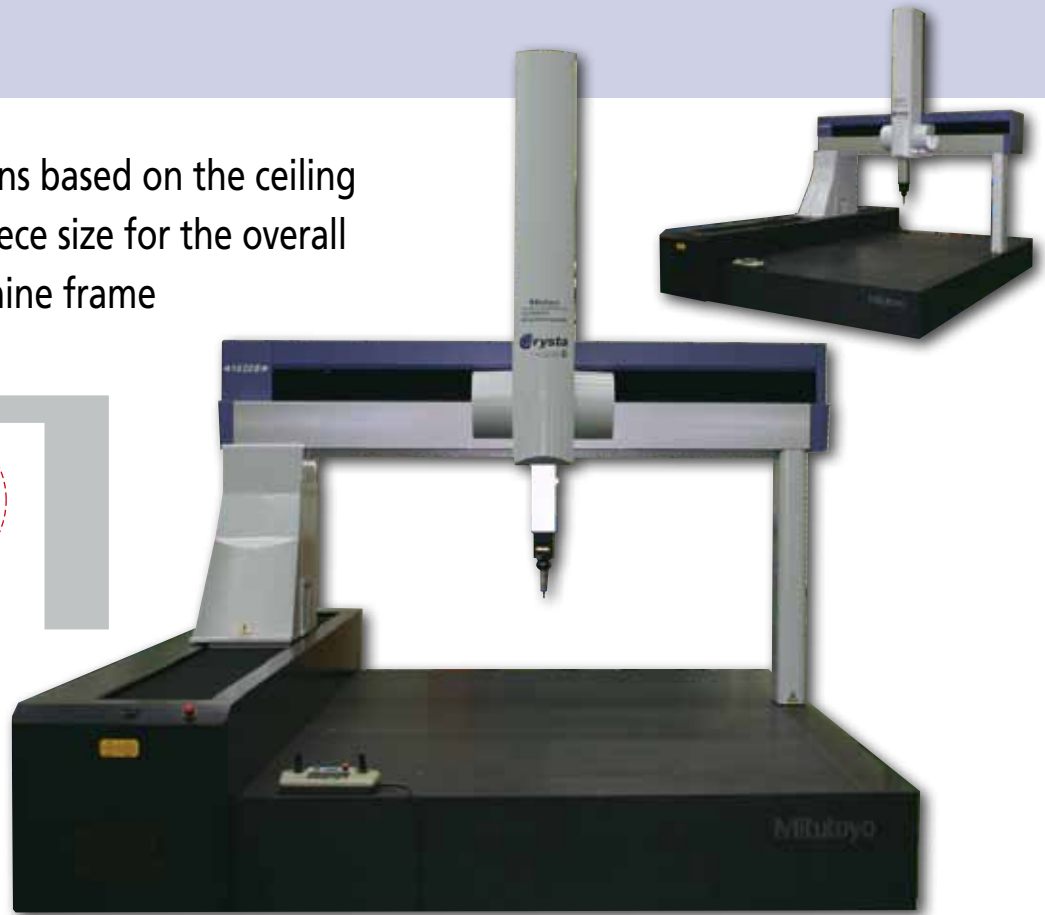
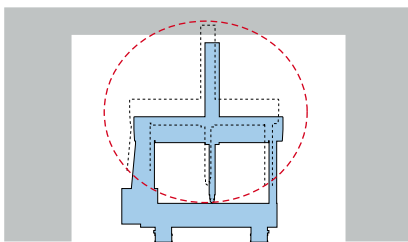
Main specifications

Model No.	Crysta-Apex C								
	774	7256	7306	7406	7406ST	7506	976	9104	
Measuring range (mm)	X	705	705	705	705	705	705	905	905
	Y	705	2505	3005	4005	4005	5005	705	1005
	Z	405	605	605	605	605	605	605	405
Measuring error MPE_E (μm) L: measuring length (mm)	Same as standard machine 776	[SP25M] (1.9+4L / 1000)	[SP25M] (1.9+4 L / 1000)	[TP200] (3.0+3 L / 1000)	[SP25M] (1.9+4 L / 1000)	[TP200] (3.0+3L/1000)	Same as standard machine 9106	Same as standard machine 9106	
Special straightness (μm)	—	Y axis straightness (in the direction of the X axis) 1.0 μm / 2500 mm	Y axis straightness (in the direction of the X axis) 1.0 μm / 3000 mm	—	Y axis straightness (in the direction of the X axis) 1.4 μm / 4000 mm	—	—	—	
Max. workpiece weight (kg)	800	Guaranteed accuracy: 1000 Permissible load: 2500	Guaranteed accuracy: 1000 Permissible load: 2500	1000	Guaranteed accuracy: 1000 Permissible load: 2500	1000	1000	1200	
Machine weight (kg)	1700	5550	5900	6350	6550	7850	1920	2200	
Remark		Various conditions must be satisfied for guaranteed straightness.	Various conditions must be satisfied for guaranteed straightness.		Various conditions must be satisfied for guaranteed straightness.				

Crysta-Apex C 1600/2000 Series

Specially sized

Special specifications based on the ceiling height and workpiece size for the overall height of the machine frame



Main specifications

Model No.	Crysta-Apex C				
	16208	162012	163014	16528	20408
Measuring range (mm)	X	1605			2005
	Y	2005		3005	4005
	Z	805	1205	1405	805
Measuring error MPE_E (μm) L: measuring length (mm)	Same as standard machine 163012	Same as standard machine 163012	[SP25M] (4+5L/1000)	[TP200] (18+18L/1000)	[TP200] (7+6L/1000) [SP25M] (4.5+6L/1000)
Max. workpiece weight (kg)	3500 (same as the standard machine)	3500 (same as the standard machine)	3500 (same as the standard machine)	2000 (same as the standard machine)	5000 (same as the standard machine)

Crysta-Apex C Series

Special type specifications

Special high accuracy specifications

- Special specifications that offer higher accuracy than the standard specifications
- Main special high accuracy specifications

Model No.	Special high accuracy Crysta-Apex C	
	122010	123010
Measuring range (mm)	X	1205
	Y	2005
	Z	1005
Measuring error MPE _L (μm) L: measuring length (mm)	[SP25M] (1.9+3 L / 1000) Standard accuracy: (2.3+3L/1000)	[SP25M] (1.9+3 L / 1000) Standard accuracy: (2.3+3 L / 1000)
Remark	Temperature environment: 18 to 22°C	Temperature environment: 18 to 22°C



Crysta-Apex C122010

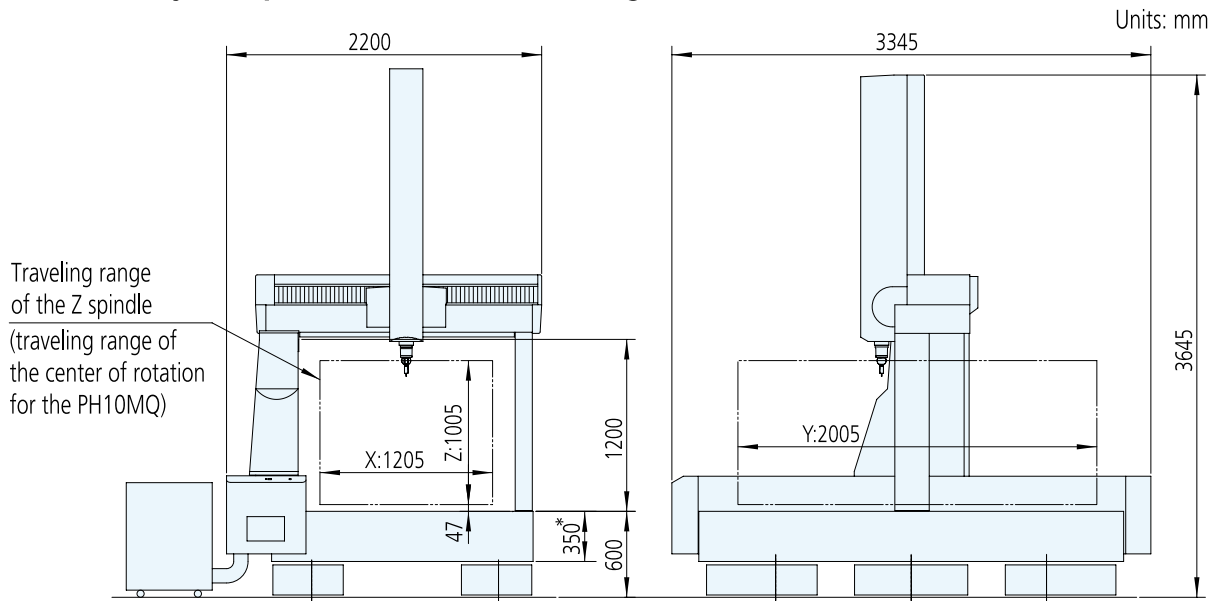
For Measuring 5-Ton Workpieces (Vibration Isolator Specifications)

- For workpieces that are too heavy to measure using a standard machine, we offer a base with increased rigidity that will not become deformed, and therefore less accurate, due to the weight. We also offer a vibration isolator.
- Measurement of the mold for car parts

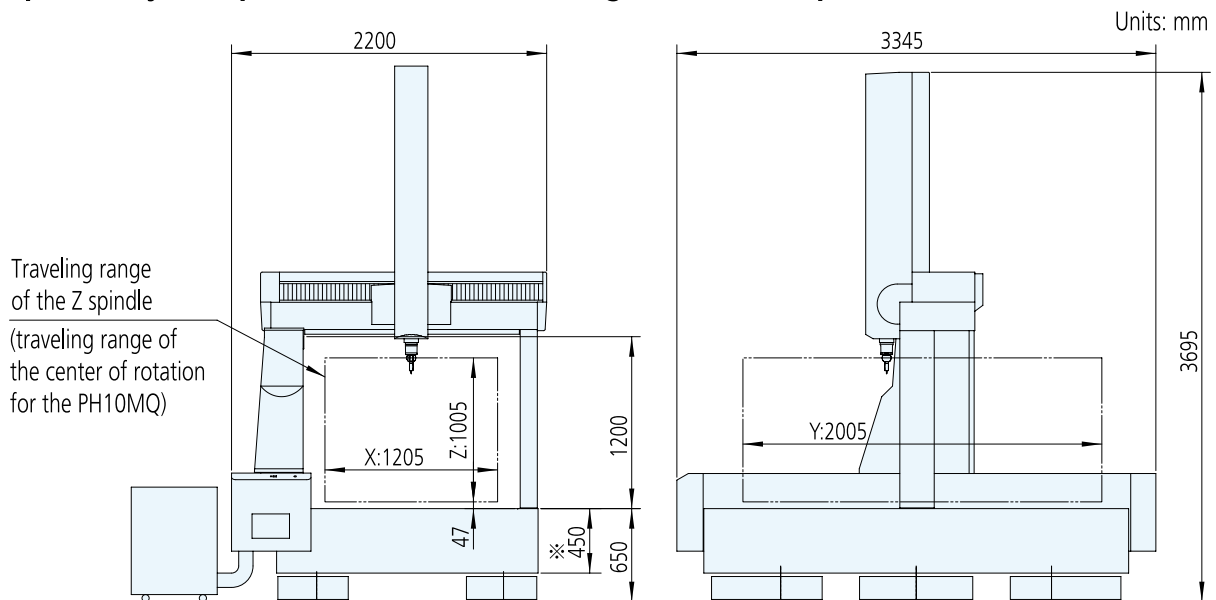
Main specifications

Model No.	Crysta-Apex C122010	
Measuring range (mm)	X	1205
	Y	2005
	Z	1005
Measuring error MPE _L (μm)	Same as the standard machine	
Max. workpiece weight (kg)	5000	
Machine weight (kg)	7800	
Remark	Vibration isolator specifications Required air pressure for the vibration isolator: 0.45 MPa (Air pressure source: At least 0.55 MPa)	

Standard Crysta-Apex C122010 External Diagram (with a Standard Vibration Isolator)

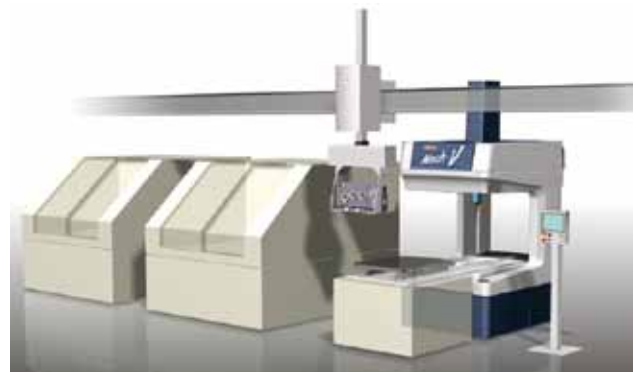


Special Crysta-Apex C122010 External Diagram (with a Special Vibration Isolator)



Other special specifications

In-line measurement using MACH-V



Simplified dust-proof rack



Simplified conveyor: KOMEG



This simplified conveyor accurately positions mass-produced, heavy workpieces on the coordinate measuring machine.

Large measuring machine assembly plant



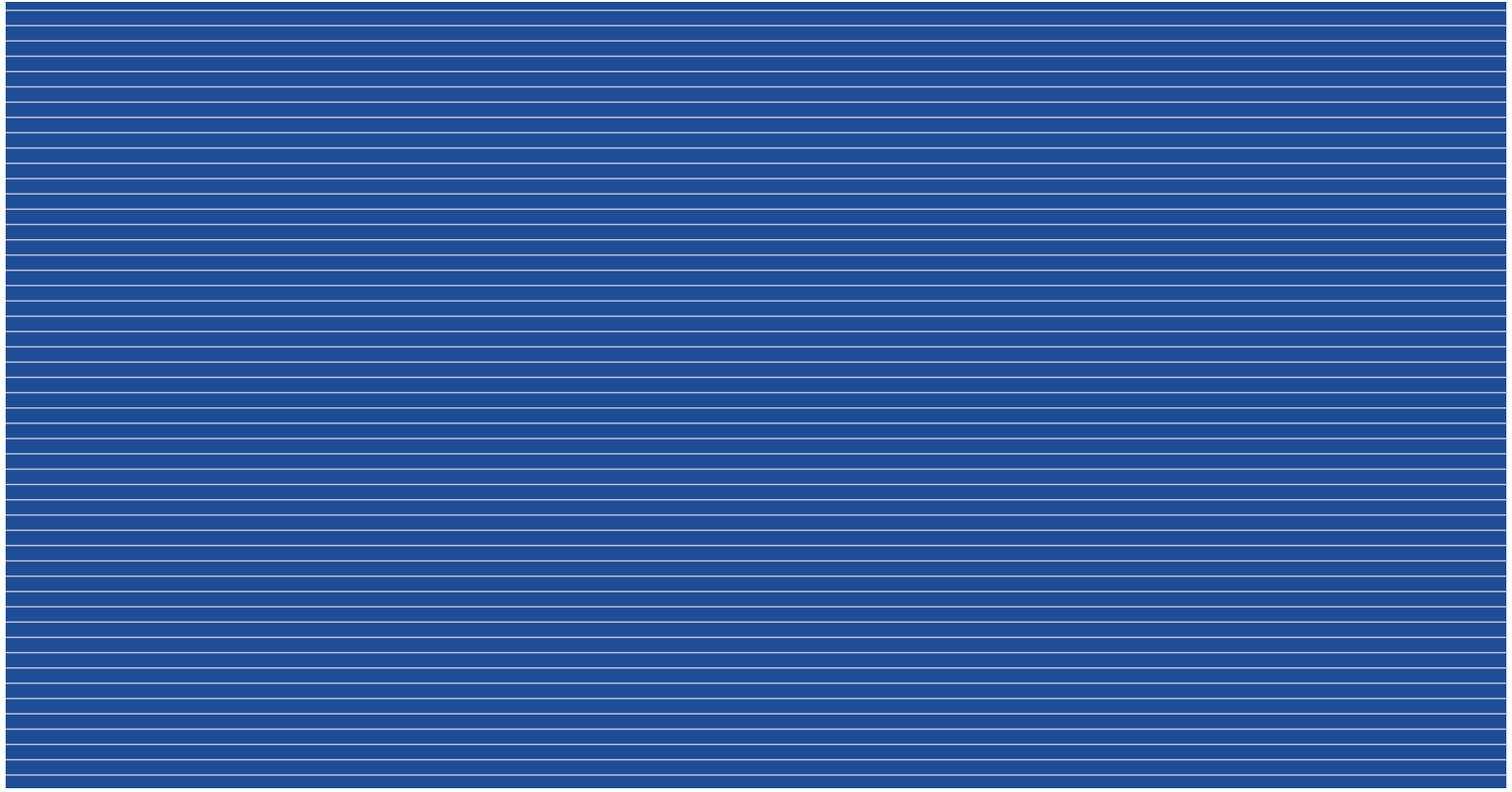
Overview

- Manufactured models: large coordinate measuring machines, FPD-related equipment
- Environment, manufacturing facilities
Assembly environment: $20\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$
Grade slab: 1 m
20-ton cranes: 3
- Number of manufactured units: 100 machines per month

Main facilities

- Air-conditioning: Our delivent fan system suppresses variation in the room temperature as much as possible.
- Lighting: We use highly efficient lights whose brightness is controlled using inverters to conserve energy. Our system suppresses the initial illuminance, gradually increases the supplied power, and maintains a constant illuminance of 650 to 700 lux.





- 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

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