

CRYSTA-APEX S1200 Series

Series 191 - Standard CNC CMM

Designed and constructed using Mitutoyo's wealth of experience in CNC CMM technology, CRYSTA-APEX C features lightweight materials and an innovative machine structure, providing high motion stability, high accuracy, and affordability. The temperature compensation function (16°C to 26°C) can yield accurate measurements even on the shop floor. Compatible vision and scanning probe technologies are employed to provide flexible and effective measurement capabilities.



Crysta-Apex S122010

Accuracy is specified for the following environmental conditions for the CMM*:

Temperature range		18°C - 22°C	16°C - 26°C
Temperature change	Per hour	1.0 K	1.0 K
	Per 24 hours	2.0 K	5.0 K
Temperature gradient	Vertical	1.0 K/m	1.0 K/m
	Horizontal	1.0 K/m	1.0 K/m

***When using temperature compensation system**

Specifications

Digital step	0,1 μm
Accuracy ⁽¹⁾ S1200	$E_{0,MPE} : \pm(2,3+0,3L/100)\mu\text{m}$, $\pm(2,3+0,4L/100)\mu\text{m}$ ⁽²⁾
	$P_{FTU,MPE} : 2,0 \mu\text{m}$
	$MPE_{THP} : 2,8 \mu\text{m}$ (50s)
Accuracy ⁽¹⁾ S1600 (191-262-2/-272-2/-282-2)	$E_{0,MPE} : \pm(3,3+0,45L/100)\mu\text{m}$, $\pm(3,3+0,55L/100)\mu\text{m}$ ⁽²⁾
	$P_{FTU,MPE} : 5,0 \mu\text{m}$
	$MPE_{THP} : 6,0 \mu\text{m}$ (120s)
Accuracy ⁽¹⁾ S1600 (191-262H-2/-272G-2/-282H-2)	$E_{0,MPE} : \pm(4,5+0,55L/100)\mu\text{m}$, $\pm(4,5+0,4L/100)\mu\text{m}$ ⁽²⁾
	$P_{FTU,MPE} : 6,0 \mu\text{m}$
	$MPE_{THP} : 7,0 \mu\text{m}$ (120s)
Work table material	Black granite
Work table tapped insert	M8 x 1.25 mm
Scales	High accuracy linear encoder
Guide system	Air bearings on each axis
Max. drive speed	520 mm/sec
Max. acceleration	Each axis : 980 mm/s ² (0,1G) Max. combined acceleration : 1667 mm/s ² (0,16G)

⁽¹⁾ According to ISO 10360-2 (2010) methods when using the SP25M probe system module SM25-1, with a ϕ 4x50 mm stylus.
L= measured length (mm).

⁽²⁾ Specified accuracy for temperature range: 16° - 26°C.

Model	CRYSTA-APEX S121210	CRYSTA-APEX S122010	CRYSTA-APEX S123010
No.	191-392	191-394	191-396
Range X x Y x Z axis	1205 x 1205 x 1005 mm	1205 x 2005 x 1005 mm	1205 x 3005 x 1005 mm
Work table size	1400 x 2165 mm	1400 x 2965 mm	1400 x 3965 mm
Workpiece	Max. height : 1200 mm Max. loading : 2000 kg	Max. height : 1200 mm Max. loading : 2500 kg	Max. height : 1200 mm Max. loading : 3000 kg
Mass (main unit)	4050 kg	6150 kg	9110 kg

CRYSTA-APEX C1600 Series

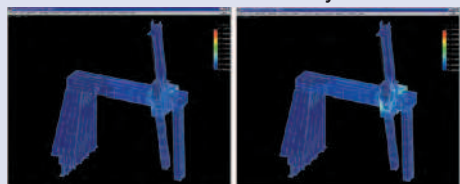
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Model	CRYSTA-APEX C163012	CRYSTA-APEX C164012	CRYSTA-APEX C165012
No.	191-262-2	191-272-2	191-282-2
Range X x Y x Z axis	1605 x 3005 x 1205 mm	1605 x 4005 x 1205 mm	1605 x 5005 x 1205 mm
Work table size	1800 x 4205 mm	1800 x 5205 mm	1800 x 6205 mm
Workpiece	Max height : 1400 mm Max. loading : 3500 kg	Max. height : 1400 mm Max. loading : 4500 kg	Max. height : 1400 mm Max. loading : 5000 kg
Mass (main unit)	10600 kg	14800 kg	19500 kg

Model	CRYSTA-APEX C163016	CRYSTA-APEX C164016	CRYSTA-APEX C165016
No.	191-262H-2	191-272H-2	191-282H-2
Range X x Y x Z axis	1605 x 3005 x 1605 mm	1605 x 4005 x 1605 mm	1605 x 5005 x 1605 mm
Work table size	1800 x 4205 mm	1800 x 5205 mm	1800 x 6205 mm
Workpiece	Max. height : 1800 mm Max. loading : 3500 kg	Max. height : 1800 mm Max. loading : 4500 kg	Max. height : 2200 mm Max. loading : 5000 kg
Mass (main unit)	10650 kg	14850 kg	19550 kg



Joystick controller



The machine structure has been optimized using FEM (Finite-Element Method) and modal analysis