

# PREMIER



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International Metrology Systems



# PREMIER

From Formula 1 racecars to Americas Cup yachts, to high-performance aircraft, when speed and strength are the goal Carbon Fibre is the material of choice.

IMS announce the new Premier range of CMMs. Utilising the latest Carbon Fibre materials for the entire superstructure, IMS have created the latest and most technologically advanced CMM ever. The Premier is the first CMM in the industry to boast an all Carbon Fibre superstructure; the entire moving structure (Bridge Beam, Y Main Carriage, Y Support Leg and Z Column) is made from Carbon Fibre, which is a first of its kind for the CMM industry.

Carbon Fibre is an ideal material for use in the metrology world. In comparison with aluminium, Carbon Fibre composites have over fourteen times more tensile strength; nineteen times lower thermal expansion; five times greater stiffness and yet are nearly twice as light. Carbon Fibre has almost ten times greater stiffness to weight ratio than aluminium and significantly more than other materials (see below).

<b>Material*</b>	<b>Tensile Strength</b> MN/m <sup>2</sup> (Mpa)	<b>Thermal Expansion</b> microns/m/degC	<b>Stiffness GN/</b> m <sup>2</sup> (Gpa)	<b>Weight</b> 1000 Kg/m <sup>3</sup>	<b>Stiffness/Wt Ratio</b> Gpa/1000Kg/ m <sup>3</sup>
<b>Carbon Fibre</b>	4300	1.2	380	1.55	245
<b>Aluminium Alloy</b>	300	23.0	70	2.77	25
<b>Mild Steel</b>	460	11.7	210	7.75	27
<b>Ceramic</b>	320	4.3	240	3.4	71
<b>Granite</b>	7 - 10	5.5 - 7.5	60 - 100	2.70 - 2.90	24
<b>Titanium</b>	110	4.43	620	9.0	25

\*Material used for comparison Carbon Fibre - M40SC, Aluminium - 6082TF and Ceramic - AC270

The **PREMIER** Matrix caters for touch trigger probing (TP20 etc) and the **PREMIER** Maxxum for continuous scanning probes (SP25, SP80). An extensive range of measurement sizes are offered for up to 3000mm long with starting volumes as below:

<b>Premier 1000</b>	<b>Premier 1250</b>	<b>Premier 1500</b>
1000x1000x800	1250x1250x800	1500x1500x800

Full range and special sizes upon request

## Machine Physical Specifications

Model	Travels (mm)			Overall Dimensions (mm)			Granite Table Dimensions (mm)			Weights (kg)		
	X	Y	Z	X	Y	Z	L	W	H	Table	Total	Transit
1000	1000	1000	800	1790	1930	3230	1600	1850	200	1776	2010	2310
	1000	1250	800	1790	2180	3230	1600	2100	200	2016	2320	2645
	1000	1500	800	1790	2430	3230	1600	2350	250	2820	3040	3390
	1000	1000	1000	1790	1930	3630	1600	1850	200	1776	2020	2330
	1000	1250	1000	1790	2180	3630	1600	2100	200	2016	2325	2660
	1000	1500	1000	1790	2430	3630	1600	2350	250	2820	3045	3405
1250	1250	1250	800	2040	2180	3230	1850	2100	200	2331	2640	3040
	1250	1500	800	2040	2430	3230	1850	2350	250	3260	3580	4005
	1250	2000	800	2040	2930	3230	1850	2850	300	4745	5055	5505
	1250	3000	800	2040	3930	3230	1850	3850	400	8547	8870	9370
	1250	1250	1000	2040	2180	3630	1850	2100	200	2331	2645	3055
	1250	1500	1000	2040	2430	3630	1850	2350	250	3260	3590	4025
	1250	2000	1000	2040	2930	3630	1850	2850	300	4745	5060	5520
	1250	3000	1000	2040	3930	3630	1850	3850	400	8547	8875	9385
1500	1500	1500	800	2290	2430	3230	1850	2350	250	4095	4415	4915
	1500	2000	800	2290	2930	3230	1850	2850	300	5386	5700	6225
	1500	3000	800	2290	3930	3230	1850	3850	400	9702	10030	10580
	1500	1500	1000	2290	2430	3630	1850	2350	250	4095	4420	4930
	1500	2000	1000	2290	2930	3630	1850	2850	300	5386	5705	6240
	1500	3000	1000	2290	3930	3630	1850	3850	400	9702	10035	10595
	1500	1500	1200	2290	2430	4030	1850	2350	250	4095	4430	4950
	1500	2000	1200	2290	2930	4030	1850	2850	300	5386	5715	6260
	1500	3000	1200	2290	3930	4030	1850	3850	400	9702	10040	10610

## Machine Accuracy Specifications

Model	Travels (mm)			Measuring Accuracy (μm) *	Maximum Table load (Kg) **
	X	Y	Z	ISO 10360-2	
1000	1000	1000	800	2.5 + L/250	750
	1000	1250	800	2.6 + L/250	750
	1000	1500	800	2.7 + L/250	900
	1000	1000	1000	3.0 + L/250	750
	1000	1250	1000	3.1 + L/250	750
	1000	1500	1000	3.2 + L/250	900
1250	1250	1250	800	2.8 + L/250	750
	1250	1500	800	2.9 + L/250	900
	1250	2000	800	3.1 + L/250	1100
	1250	3000	800	3.3 + L/250	1500
	1250	1250	1000	3.8 + L/250	750
	1250	1500	1000	3.9 + L/250	900
	1250	2000	1000	4.1 + L/250	1100
	1250	3000	1000	4.3 + L/250	1500
1500	1500	1500	800	3.3 + L/250	900
	1500	2000	800	3.5 + L/250	1100
	1500	3000	800	3.7 + L/250	1500
	1500	1500	1000	4.2 + L/250	900
	1500	2000	1000	4.4 + L/250	1100
	1500	3000	1000	4.6 + L/250	1500
	1500	1500	1200	5.1 + L/250	900
	1500	2000	1200	5.3 + L/250	1100
1500	3000	1200	5.5 + L/250	1500	

Note \* Machine performance is only guaranteed under IMS-specified checkout conditions.

\*\* Table loading is for standard granite thickness. Higher load capacities are available on request.

## Machine Facility Requirements and Specifications.

- Resolution: 0.0001mm (0.000004").
- Maximum table loading: See table above.
- Maximum machine weight: See table above.
- Work Surface: Granite with M6 inserts.
- Maximum move velocity: 600mm/s per axis  
1039mm/s 3D vector.
- Maximum touch velocity: 20mm/s per axis
- Maximum acceleration: 1500mm/s<sup>2</sup> peak per axis  
2598mm/s<sup>2</sup> peak 3D vector.
- Maximum touch acceleration: 200mm/s<sup>2</sup> per axis
- Power Supply: 110 or 240v, 50/60 Hz.
- Electrical consumption – 750 watts.
- Air consumption – 12 litres/minute at 5.5 bar.
- Tolerable Environment: Temperature 10°C to 40°C,  
Humidity 40% to 80%, non-condensing\*

\* This guideline is for storage, transport and operation. Machine performance is dependant upon working environment. Accuracy specification can only be guaranteed under IMS-specified checkout conditions.

### IMS Checkout Conditions.

- Move speed 150mm/s
- Touch speed 5mm/s
- Move acceleration 500mm/s<sup>2</sup>
- Touch acceleration 50mm/s<sup>2</sup>
- Continuous Motion Off
- Temperature 20°C ± 6% of accuracy figure for longest length bar converted to an equivalent temperature for that bar length.
- Max rate of change 0.5°C / hour in a 24 hour cycle
- Thermal gradient 1° C across the volume containing the machine.
- Humidity 80%
- Probe configuration PH10M, TP200, PS17R (4mm D x 20mm L).

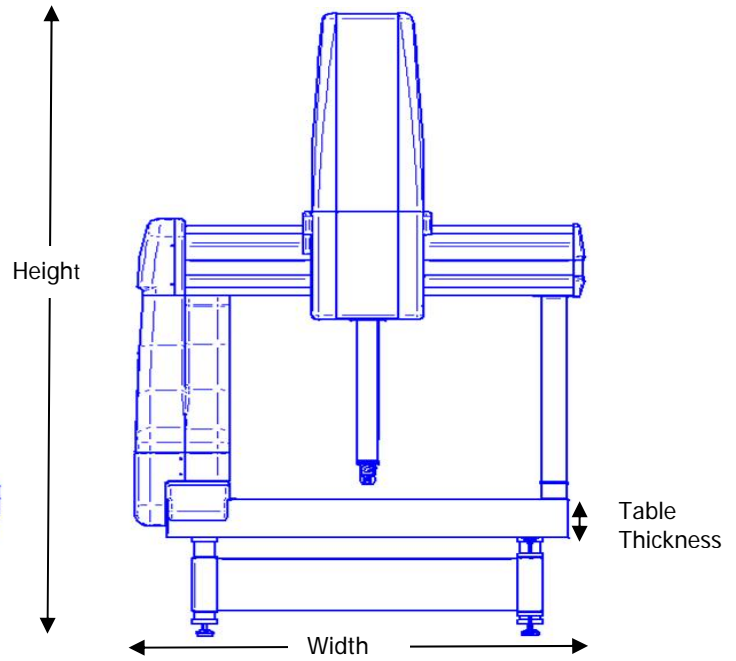
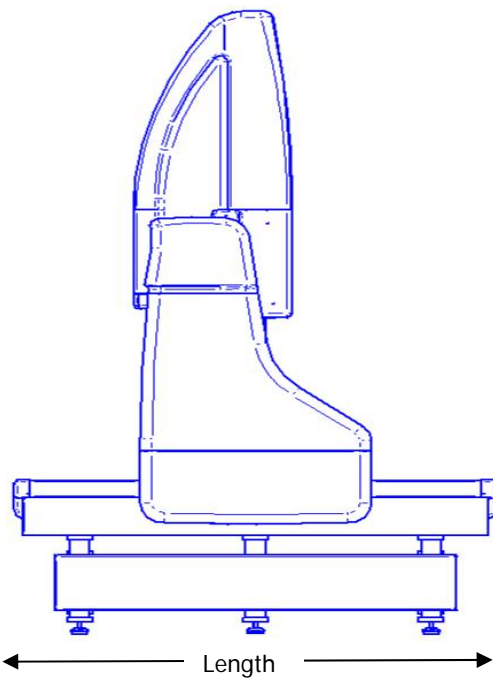
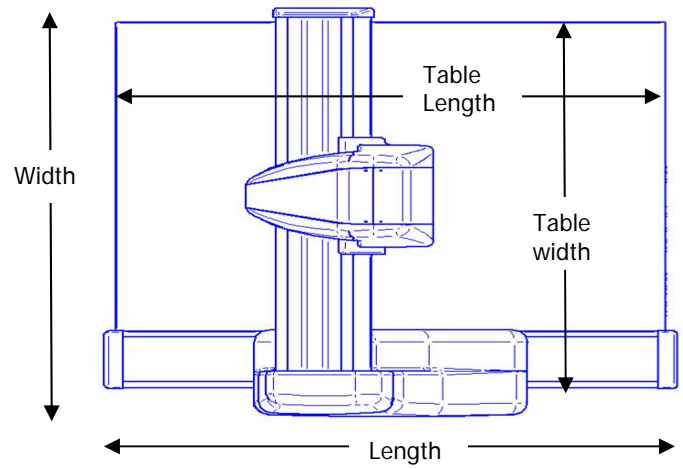
If the thermal environment exceeds the stated limits, thermal compensation will be applied to the measured results.

If the rate of change of temperature or thermal gradient limits are exceeded the accuracy specification limit will be increased accordingly.

Technical Specifications are subject to change without prior notice.

# PREMIER

## Machine Outline.



Your local IMS Agent or Distributor is:

Name:

Company:

Address:

Postcode

Telephone:

Fax:

Email:

Website: