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*Co-ordinate
Measuring Gauge*



International Metrology Systems

Umpire CMG

Co-ordinate Measuring Gauge

CMM- LIVING IN THE PAST

Originally developed as a universal 3D measuring instrument, the Co-ordinate Measuring Machine (CMM) has evolved into a highly accurate, fast, cost-effective and easy to use quality control technology.

CMM- FLEXIBILITY IS THE KEY

Quality is integral with production and process control equipment is being installed ever closer to the point of production. The CMM being utilised as a flexible shopfloor inspection centre has become commonplace in many companies which have recognised the negatives associated with traditional dedicated component gauges and fixtures.

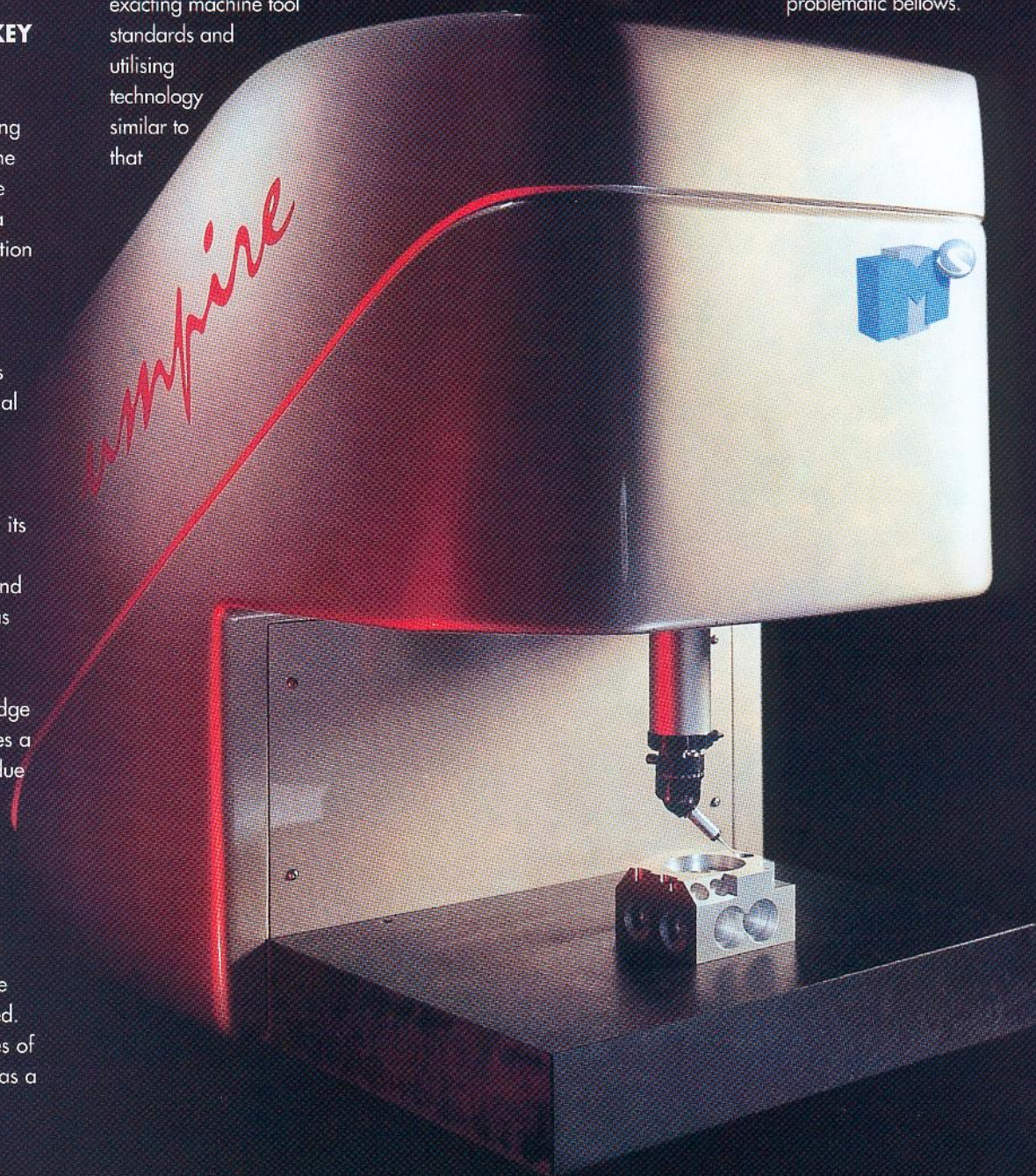
The CMM however, with its sensitive air bearings, unprotected slideways and exposed architecture was never designed for the production environment. The traditional small bridge style of CMM also carries a significant cost burden due to a scaled design from larger family members. Enclosing the CMM in a protected cabin adds additional expense to overcome a shopfloor application for which the CMM is not ideally suited. However, the advantages of using CMM technology as a gauge are immense. Check it out!

CMG- CO-ORDINATE MEASURING GAUGE INSPECTING THE FUTURE

The Umpire Co-ordinate Measuring Gauge (CMG) from IMS is an all-new revolutionary and cost-effective solution to the application of co-ordinate metrology on the shopfloor. Designed and manufactured to exacting machine tool standards and utilising technology similar to that

found at the heart of machining centres and lathes, Umpire has the strength and stability to keep pace with production even in the harshest of applications while maintaining CMM flexibility. Umpire delivers the ruggedness of "workshop hardened" gauges with the precision of dedicated gauging. With fewer than 60 individual

components, design simplicity is key to Umpire's reliability and stability. Its economical pricing is fundamental to the cost justification of co-ordinate metrology over traditional inspection tools. Shopfloor contamination is eliminated by Umpire being totally encapsulated in a stylised single piece cover. There are no exposed moving parts, or problematic bellows.



Speed, Accuracy and Durability...

Umpire- **VIRTUAL DMIS MAKING CAD-CMM INSPECTION A REALITY**

With all new product design based on CAD techniques and most part manufacturing undertaken using software programs written with CAM tools, the linking of Umpire with the revolutionary CAD based Virtual DMIS measuring software means the inspection process is no longer an island. It is now an integrated part of the manufacturing system allowing generation of inspection programs before manufacturing of the first part. When linked to real-time SPC this provides the data essential to control the production process. And with controlled access to programming tools, users are ensured that production personnel will operate the equipment only.

Umpire- **HIGH ACCURACY MADE AFFORDABLE**

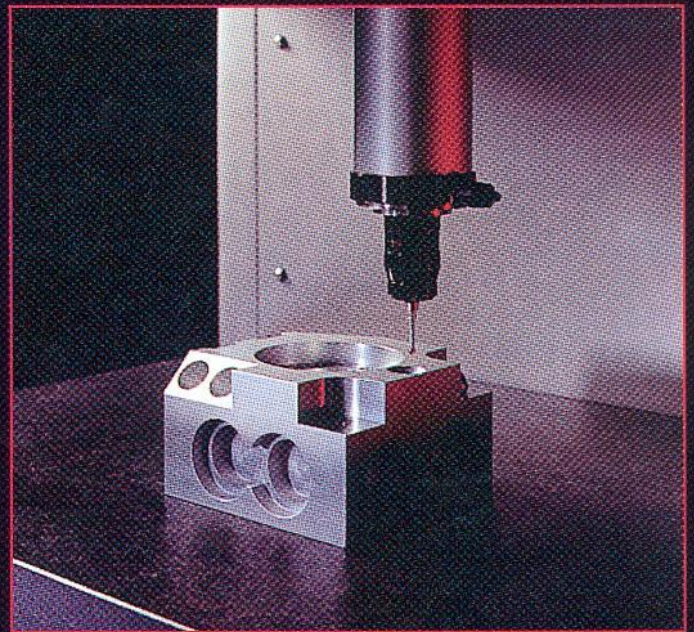
CMG accuracy is in-built: the optional granite base plate has only a supporting role, thereby allowing the CMG to be added to existing fixture plates or fully integrated within a manufacturing line to provide the ultimate in application flexibility.

Umpire- **THE ALTERNATIVE SOLUTION USING PROVEN MACHINE TOOL TECHNOLOGY**

With its unique cartesian structure, each axis utilises hardened linear guides with optimum bearing spreads. Centrally-located ballscrew drive shafts are directly coupled to the servo motor, providing the best mechanically derived accuracy in its class. The added value of software accuracy enhancement and optional thermal compensation ensures even more impressive performance

Umpire- **FULL MEASURING PERFORMANCE**

With a traditional CMM, the selection of Renishaw probing type can significantly reduce the Z axis vertical measuring



stroke. Component fixture design will further erode this critical dimension often forcing the selection of a larger machine. This adds to cost and reduces the CMM justification. With adjustable fixed pitch Z column (patent pending) Umpire ensures that regardless of probe, fixture design or application, the total Z measuring travel remains available and can be positioned exactly to suit specific needs.

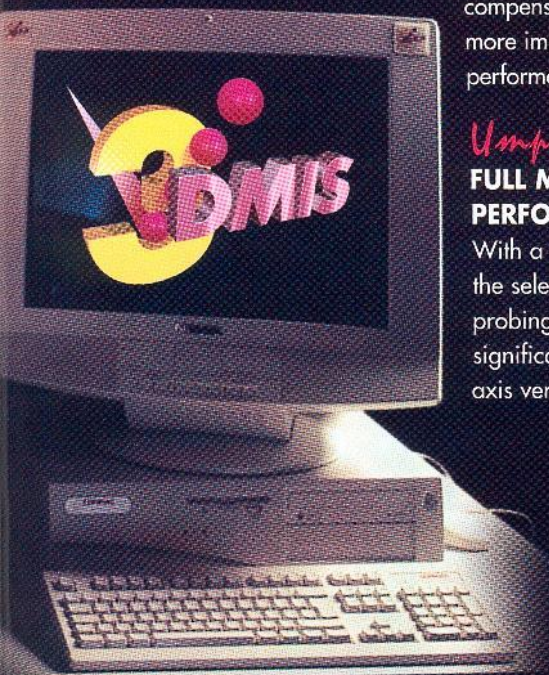
TTD ('Through The Door') design ensures gauge portability and allows its use in a quality laboratory without having to partly disassemble the machine or building (an all too common occurrence). The elimination of air bearings also increases Umpire's portability and plug-and-measure capability.

Umpire- **SIZE MATTERS**

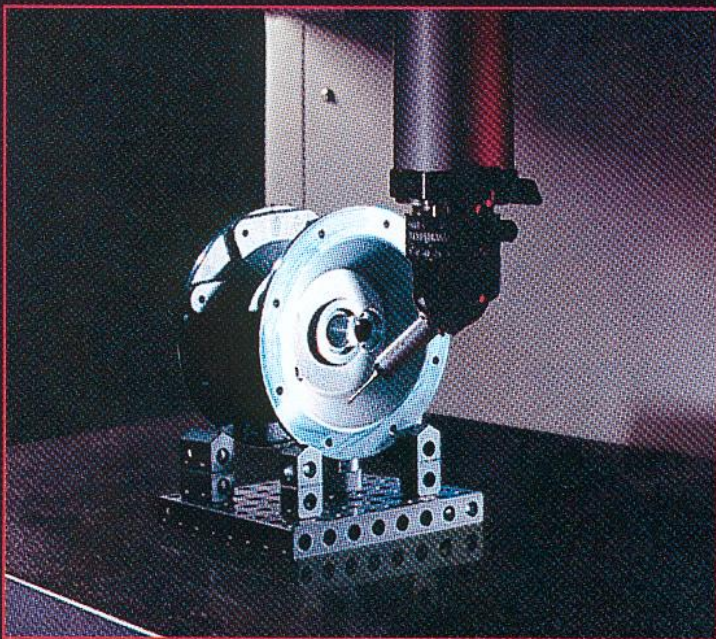
With a measuring volume of 350 mm by 350 mm by 300 mm, perfectly matched through extensive market research, the Umpire satisfies the inspection demands found in the production of most small and medium size components.

Umpire- **MATCHING PRODUCTION TO CONTROL HARDWARE AND SOFTWARE**

Using M9 transputer-based 32-bit continuous motion control in-built to the PC, Umpire's continuous axis motion effectively reduces cycle times and machine stress through smoother probe trajectories. capitalises on the high speed traverse rates of 15 m/min and acceleration rates of 1 m/sec² through the measuring volume.



with Flexibility - by Ingenuity



Umpire-
**TURNKEY PLUG AND
MEASURE SOLUTIONS**

Umpire can be supplied as a ready to measure production gauge with fixtures and inspection programs already developed. IMS gauging partners around the world are fully qualified to tool-up the Umpire to suit specific demands, with pre-delivery run-off to Gauge R & R standards.

Umpire-
**YOUR PASSPORT TO
HIGHER QUALITY**

Developed and manufactured at the new IMS manufacturing facility near Edinburgh, Scotland, Umpire defines a European CMM specifically developed to match world production demands.

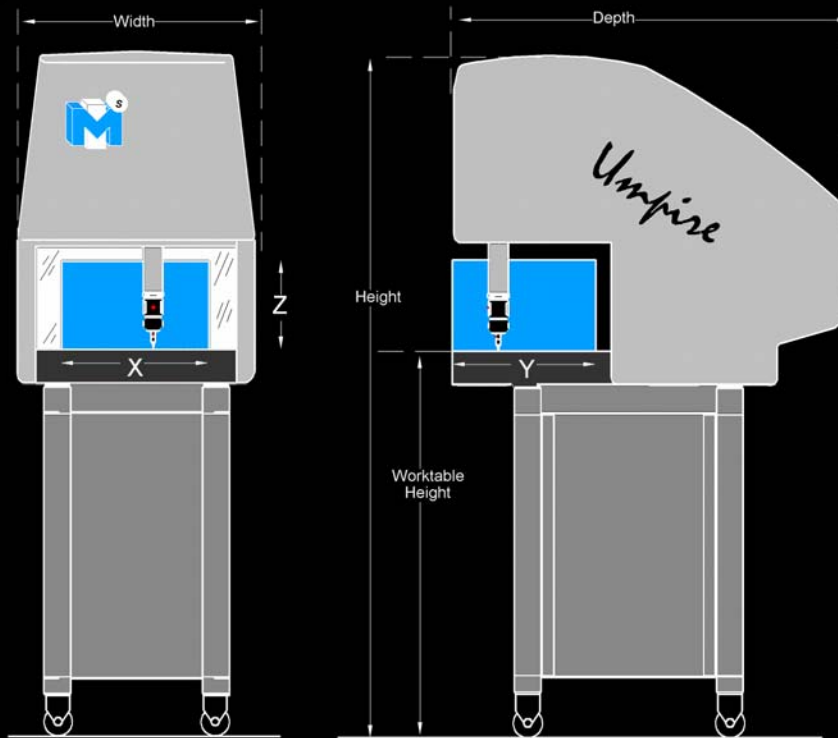
Umpire-
**THE PRODUCT OF
EXPERIENCE**

International Metrology Systems (IMS), a relative newcomer to the CMM market and benefiting from observing the dynamics of the market and its supplier base. IMS originates from the Ferranti Metrology Group, which invented CMM technology. The company is staffed with engineers and technicians that rank among the most capable and experienced in the world. IMS is a new company bringing a fresh approach to the market with *Innovative Metrology Solutions* which include a full range of inspection and production CMM products.

*Interpreting the rules
of manufacturing-
on the shopfloor*

**Umpire
CMM**





SPECIFICATION

		Umpire 350	Umpire 500
Strokes	X	350mm (13.8")	500mm (19.7")
	Y	350mm (13.8")	500mm (19.7")
	Z	300mm (11.8")	400mm (15.75")
Machine Dimensions	Height	1978mm (77.9")	2300mm (90.6")
	Width	710mm (28")	860mm (33.9")
	Depth	1186mm (46.7")	1586mm (62.5")
	Working Height	1084mm (42.7")	1086mm (42.7")
Maximum Table Loading		200kg (440lbs)	200kg (440lbs)
Machine Weight		220 kg (484 lbs)	310kg (683 lbs)
Axis Linear Traverse Speed		15m/min (10"/s)	15m/min (10"/s)
Axis acceleration		1.0m/s ² (3.3ft/s ²)	1.0m/s ² (3.3ft/s ²)
Resolution		0.001mm (0.0004")	0.001mm (0.0004")
Accuracy	ISO 10360-2	3.3+L/250	4.2+L/200
	CMMA	M=3+L/250	3.5+L/200
	B89	0.00029", 8" ballbar	0.00029", 12" ballbar
Power Supply		110 or 240V – 50/60Hz	
Electrical Consumption		500W	
Work Surface		Granite with threaded M6 insert pattern	
Tolerable Environment		10°C to 40°C, humidity 40% to 80%	

Specifications subject to change without notice



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