



MEASUREMENT SOLUTION PROVIDER



CATALOGUE NO. CMM-E12

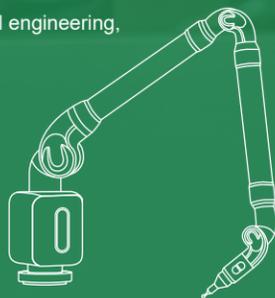
# MEASURING ARMS



The measuring arm comprises multiple joints, enabling spatial coordinate measurement through angular sensors and a length measurement system.

This portable coordinate measuring equipment combines portability, flexibility, ease of operation and high precision, finding extensive application in mechanical engineering, automotive manufacturing and aerospace sectors.

Compared to the 6-axis arm, the 7-axis arm has a higher degree of freedom and flexibility of movement, and can be adapted to scanning probes, enabling high-precision scanning measurements to be performed under complex conditions.



## TECHNOLOGY ADVANTAGE

- » In accordance with ISO 10360-12
- » Internal balance
- » Dual high performance batteries
- » Equivalent-arm design
- » High-Speed WiFi performance
- » Aerospace grade carbon-fiber material

### Built-in Balancing Mechanism

Offers comfortable handling with no operational strain, enabling effortless single-handed operation.

### Encoder

High-accuracy angle encoder, primarily employed for high-precision angular measurement, with accuracy requirements within a few arcseconds.

### Equal-arm Design

The arm body achieves maximum extension, covering the full measurement range without blind spots—whether horizontally, vertically, or at complex spatial angles.

### Zircon Probe

More suitable for on-site measurement, offering long-term durability and robust performance.

### Temperature Compensation System

Continuously monitors the operating environment, dynamically adapts to environmental conditions, ensuring the equipment consistently maintains optimal detection performance.

### High-Speed Wi-Fi

Continuous data acquisition with rapid response and zero latency, delivering stable and reliable connectivity to ensure seamless measurement without interruption.

### Dual Batteries

High-capacity dual batteries with hot-swap capability; exceptional endurance stemming from low-power design, enabling over 16 hours of continuous measurement.

### Chuck Installation

Enables quick manual fitting and removal



### EQUAL ARM DESIGN

Equal arm design breaks through the space limitation of traditional measuring equipment. This design allows the probe to flexibly reach into all corners of complex workpieces, whether it is a small gap, a deep cavity structure or a hidden part, all can be easily reached, to achieve all-round, no blind spot accurate measurement, to ensure that every detail can be accurately captured.



### BUILT-IN BALANCING

The measuring arm has a built-in advanced balancing system with intelligent sensors that sense the operating force in real time. Whether it is up and down or left and right rotation, it can quickly respond and precisely adjust to counteract the effects of its own gravity. Flexible and smooth multi-angle movements are realized with only a slight force during operation, making complex operations easy and smooth.





### ZIRCON BALL PROBES

The high-strength zircon probe, with its excellent hardness and wear resistance, can effectively resist scratches and collisions over long periods of time. Whether in frequent contact with metal workpiece surfaces or in complex environments, the probe maintains stable geometric accuracy and surface finish, significantly extending its service life and providing outstanding durability for high-precision measurement tasks.

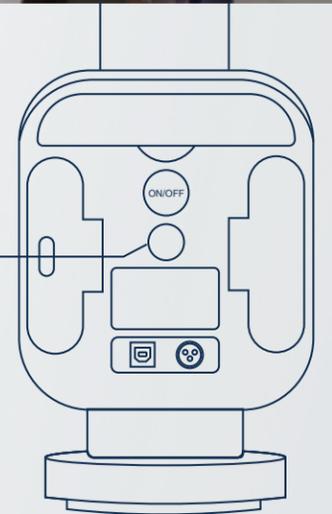
### WIFI TRANSMISSION

The device is equipped with a new generation of high-speed WIFI transmission module, using advanced wireless communication protocols.

With strong anti-jamming ability and low latency, the measurement data can be synchronized to the end device in real time in milliseconds, no matter it is a continuous and intensive point taking, or a complex space fast scanning, to ensure the measurement process is lag-free and delay-free.



WIFI



### DUAL HIGH PERFORMANCE BATTERIES

Dual super-energy battery configuration, a single piece of strong endurance, a combination of use can meet the needs of long-time operation.

Support hot-swappable design, no need to shut down the machine can quickly replace the battery, to ensure uninterrupted operation of the equipment, goodbye to power anxiety, field, workshop and other complex scenarios can also continue to work efficiently.

### CONCEALED HANDLE

The upper part of the base is equipped with a handle, which can effectively protect the equipment from damage when lifting it; it features a retractable design to save installation space.



# SPECIFICATION

## STANDARD ACCURACY, BE SERIES, 6-AXIS

Unit: mm

Code	Measuring range	Maximum permissible error				
		SPAT	E <sub>UNI</sub>	P <sub>SIZE</sub>	P <sub>FORM</sub>	L <sub>DIA</sub>
CMM-BE15	1500	0.028	0.036	0.015	0.029	0.038
CMM-BE20	2000	0.030	0.040	0.018	0.035	0.041
CMM-BE25	2500	0.035	0.045	0.020	0.038	0.050
CMM-BE30	3000	0.055	0.065	0.028	0.045	0.080
CMM-BE35	3500	0.075	0.080	0.035	0.058	0.098
CMM-BE40	4000	0.090	0.100	0.044	0.068	0.116
CMM-BE45	4500	0.112	0.120	0.048	0.086	0.128

## HIGH ACCURACY, CM SERIES, 6-AXIS

Unit: mm

Code	Measuring range	Maximum permissible error				
		SPAT	E <sub>UNI</sub>	P <sub>SIZE</sub>	P <sub>FORM</sub>	L <sub>DIA</sub>
CMM-CM15	1500	0.018	0.025	0.009	0.016	0.026
CMM-CM20	2000	0.020	0.028	0.010	0.018	0.032
CMM-CM25	2500	0.023	0.030	0.012	0.022	0.038
CMM-CM30	3000	0.034	0.042	0.016	0.032	0.052
CMM-CM35	3500	0.043	0.056	0.020	0.038	0.066
CMM-CM40	4000	0.052	0.066	0.024	0.044	0.083
CMM-CM45	4500	0.061	0.089	0.038	0.078	0.108

## HIGH ACCURACY, CM SERIES, 7-AXIS

Unit: mm

Code	Measuring range	Maximum permissible error				
		SPAT	E <sub>UNI</sub>	P <sub>SIZE</sub>	P <sub>FORM</sub>	L <sub>DIA</sub>
CMM-CM20S	2000	0.022	0.030	0.012	0.022	0.040
CMM-CM25S	2500	0.027	0.032	0.013	0.025	0.048
CMM-CM30S	3000	0.042	0.053	0.020	0.035	0.078
CMM-CM35S	3500	0.055	0.066	0.024	0.043	0.092
CMM-CM40S	4000	0.065	0.082	0.029	0.048	0.102
CMM-CM45S	4500	0.073	0.099	0.043	0.082	0.132

## ULTRA HIGH ACCURACY, HP SERIES, 6-AXIS

Unit: mm

Code	Measuring range	Maximum permissible error				
		SPAT	E <sub>UNI</sub>	P <sub>SIZE</sub>	P <sub>FORM</sub>	L <sub>DIA</sub>
CMM-HP15	1500	0.012	0.022	0.007	0.012	0.024
CMM-HP20	2000	0.016	0.024	0.008	0.015	0.030
CMM-HP25	2500	0.018	0.026	0.009	0.018	0.032
CMM-HP30	3000	0.026	0.038	0.012	0.025	0.045
CMM-HP35	3500	0.036	0.052	0.016	0.034	0.060
CMM-HP40	4000	0.045	0.063	0.020	0.038	0.077
CMM-HP45	4500	0.055	0.080	0.028	0.050	0.101

## ULTRA HIGH ACCURACY, HP SERIES, 7-AXIS

Unit: mm

Code	Measuring range	Maximum permissible error				
		SPAT	E <sub>UNI</sub>	P <sub>SIZE</sub>	P <sub>FORM</sub>	L <sub>DIA</sub>
CMM-HP20S	2000	0.018	0.026	0.010	0.019	0.038
CMM-HP25S	2500	0.020	0.028	0.011	0.022	0.042
CMM-HP30S	3000	0.032	0.048	0.016	0.032	0.072
CMM-HP35S	3500	0.045	0.061	0.020	0.039	0.088
CMM-HP40S	4000	0.055	0.076	0.026	0.044	0.098
CMM-HP45S	4500	0.065	0.095	0.036	0.065	0.122



Single-point articulation test



Sphere form measurement error



Sphere size measurement error



Distance measurement error between two points



Sphere diameter obtained from performing the articulated location test (diameter of the spherical zone containing the centers of a sphere measured from multiple orientations)

### ARM HARDWARE SPECIFICATIONS

Temperature rate	3°C/5min
Battery life	8h for one battery; 16h for two batteries
Output	USB, WI-FI
Operation Temperature	5°C-45°C
Operation humidity	0-95%, non-condensing
Power	100-240VAC, 50/60Hz
Weight	8.8kg to 10.6kg

### STANDARD DELIVERY

Main unit	1 pc
3mm zircon ball probe	1 pc
6mm zircon ball probe	1 pc
Calibration cone	1 pc
Lithium batteries	2 pcs
USB cable	1 pc
Power adapter	1 pc
Dust cover	1 pc

## STANDARD ACCESSORIES



### Calibration Cone

Calibration cone with standard base, primarily used for probe calibration tasks and single-point accuracy testing operations.



3mm zircon ball probe



6mm zircon ball probe

### Zircon Ball Probes

The zircon probe of the arm is made of zircon ceramic material, characterized by high hardness, abrasion resistance and chemical stability; excellent measurement performance, high accuracy, high resolution measurements and good repeatability.

## OPTIONAL ACCESSORIES



### Laser Line Probe

Suitable for 7-axis measuring arm, arm scanning probes for non-contact measurement acquisition.

It has the advantages of noncontact, high efficiency and high accuracy, and is widely used in manufacturing, reverse engineering, and heritage conservation.

#### SYSTEM ACCURACY WITH LASER LINE PROBE

Code	CMM-CEM-SD	CMM-CEM-HD
CMM-CM20S	0.050mm	0.040mm
CMM-CM25S	0.055mm	0.045mm
CMM-CM30S	0.062mm	0.052mm
CMM-CM35S	0.076mm	0.065mm
CMM-CM40S	0.090mm	0.081mm
CMM-CM45S	0.139mm	0.131mm
CMM-HP20S	0.043mm	0.038mm
CMM-HP25S	0.048mm	0.042mm
CMM-HP30S	0.055mm	0.047mm
CMM-HP35S	0.068mm	0.060mm
CMM-HP40S	0.080mm	0.074mm
CMM-HP45S	0.125mm	0.120mm

#### LASER LINE PROBE SPECIFICATION

Code	CMM-CEM-SD	CMM-CEM-HD
Accuracy	±28μm(2σ)	±15μm(2σ)
Working distance	115mm	
Effective scan width	near field 80 mm, far field 150 mm	
Points per line	maximum 4000 points per line	
Scan rate	1200000 points per second	
Laser	class 2	
Weight	536g	



### Magnetic Base

Attach firmly to flat metal surfaces with strong suction, even when mounted with measuring arm, to prevent loosening.

Performance parameters	
Calibre	150mm
Height	76mm
Weight	7.5kg

### Adjustable Tripod

It is foldable and easy to store and carry.

Suitable for use in different locations.

Performance parameters	
Minimum height	730mm
Total lifting height	1200mm
Lifting height	470mm
Moving force	300kg
Work environment	-15°C-55°C
Deadweight	18kg



### Electric Vacuum Base

Has a wide range of compatibility, can be seamlessly adapted to our different sizes and models of measuring arm, when the suction on the marble table, not only the operation is efficient and precise, but also ensure that the installation is solid.



### Leapfrog cones

The Frog Jump Cone consists of three units, each equipped with a magnetic base, which serves as the core of the arm's frog jump operation and extends the reach of the arm to cover large workpieces with ease.



# MEASUREMENT SOFTWARE

INSIZE DMIS Probing measurement software, the right partner for CMMs, combines a wealth of industry experience with leading-edge. It is a versatile solution that meets most of our customers measurement needs and is used in a wide range of companies of all sizes. Whether it's routine dimensional measurements or complex shape and tolerance inspections, the software can handle it all. From the measurement of simple box components to the measurement of complex surfaces, INSIZE DMIS Probing is able to carry out accurate and efficient measurement tasks, providing reliable support for quality control and production processes.



We also support the following measurement software:  
 Geomagic, Metrolog, Polyworks, Rational-DMIS, Aberlink.



# APPLICATION CASES

## Online Detection

Measuring arm are well-suited for inspecting medium to large-sized, complex components. Offering high precision, flexibility, portability, and low environmental requirements, they enable rapid inspection completion and deliver reliable results for production.



## Dimensional Analysis

The measurement data from the measuring arm not only meets customer specifications but also exceeds expectations, laying a solid foundation for quality in mass production and ensuring both manufacturing and product standards.



## Incoming Material Inspection

Utilising measuring arm for incoming material inspection reduces tooling requirements, minimises processing time, and enhances precision, thereby providing efficient and reliable support for incoming material quality control.



## Tooling Debugging

The measuring arm portable measuring device offers exceptional flexibility, enabling point-to-point contact measurements as required. It effortlessly handles multi-angle tasks, providing manufacturing with precise data support.





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