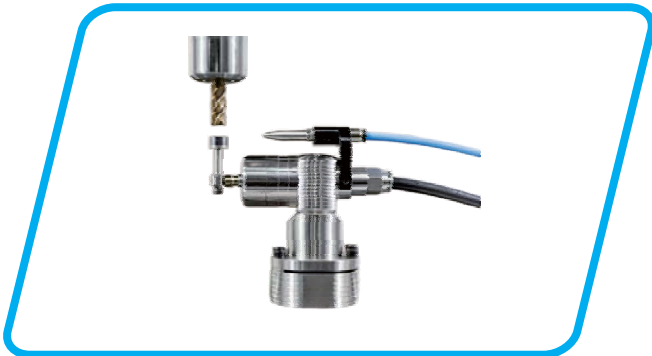
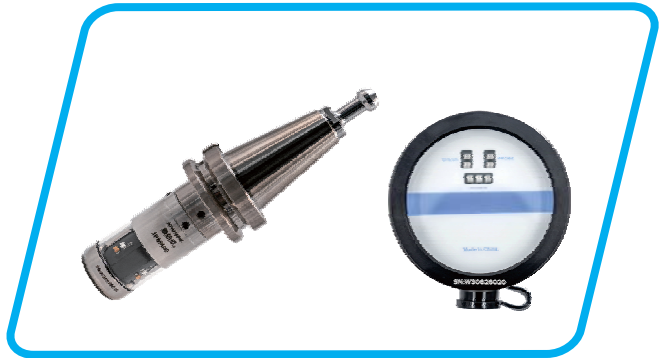


# Probing Systems For CNC Machining Tools



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### About us

JOYOSHINE delivers high-precision CNC probing solutions that ensure 1.00  $\mu\text{m}$  repeatability, high stability, and long-term reliability and rapid field maintenance—trusted by precision component manufacturers serving global leaders including Apple, Samsung, HUAWEI, HP, Dell, Intel, NVIDIA, Tesla, BMW, Mercedes-Benz, and Audi.

For over 15 years, we have focused exclusively on CNC probing solutions. By designing and manufacturing core precision components in-house, we maintain full control over performance, long-term stability, and reliability—critical for high-volume, high-accuracy production environments. With more than 10,000 probe systems shipped annually, our solutions are proven at scale across diverse manufacturing settings.

Our dedicated team of 10+ engineers in R&D, applications, and technical support enables rapid customization and responsive service—without the overhead or delays of large organizations. We engineer every solution to solve real-world metrology challenges, not just meet datasheet specifications.

Headquartered in Suzhou, China—within one hour's drive of Shanghai—we collaborate closely with partners worldwide to advance automated, precision-driven manufacturing.

### Main Products



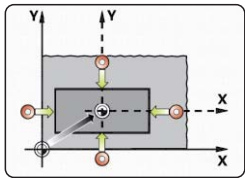
### Applications



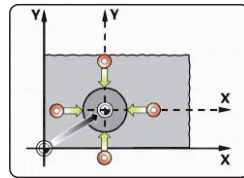
## Introduction

### Why Probing?

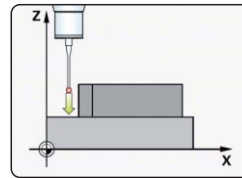
- Automated workpiece centering and positioning in the machine tool.
- High-precision workpiece positioning minimizes defective parts.
- Increase automation and eliminate manual workpiece positioning, greatly reduce human error and reduce setup time by 90%.
- Increase the capabilities of existing machine.
- Increase the efficiency and reduce rework and scrap.
- Reduce the total cost.



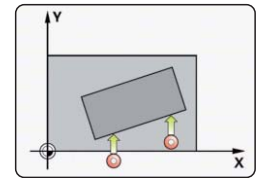
Rectangular boss center



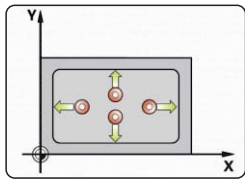
Circular boss center



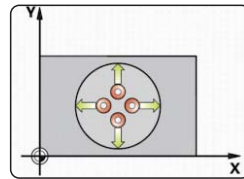
Position of any point on any axis



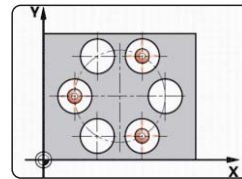
Line inclination



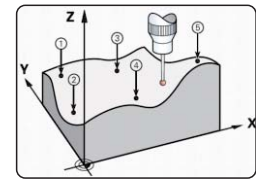
Rectangular cavity



Arc hole



Bolt hole center



Freeform surfaces

JOYOSHINE Probing System is an innovative solution of on-machine measurement for CNC machining industry. We offer a comprehensive probing solutions for CNC machining tools, such as JPM series probes, Tool setters, non-contact broken tool detection system, etc. The probing system provides the maximizing efficiency, quality, capability and accuracy on machine tools.

All sizes and configurations of machine tool can benefit from probing system, including:

- CNC machining centers-vertical, horizontal and gantry.
- CNC lathes and multi-tasking machines.
- PCB drilling and routing machines.
- CNC grinders.

## Infrared Touch Probe for CNC Machining

Delivering micron-level accuracy, our infrared touch probe enables automated workpiece alignment, in-process inspection, and tool setting—reducing setup time, eliminating manual errors, and ensuring consistent part quality.

With reliable, high-speed infrared signal transmission, it's ideal for small to medium-sized CNC machines where a clear line of sight exists between probe and receiver. Perfect for vertical/horizontal machining centers, CNC lathes, and PCB routing systems with unobstructed optical paths.

Fully compatible with FANUC, Siemens, Heidenhain, Mitsubishi, Makino, Brother, and other major CNC controls.



## Highlights

- Ultra-compact and lightweight design
- Modular quick-swap design for fast maintenance  
critical components are integrated into replaceable modules, reducing service time and cost
- Ultra-low power consumption with auto sleep/wake
- Smart collision protection: automatic emergency stop on abnormal contact  
preventing crashes and protecting both probe and spindle
- Simplified wiring: only 3 signal wires to CNC I/O  
faster installation, fewer errors
- 1.00  $\mu\text{m}$  ( $2\sigma$ ) repeatability

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## Infrared Touch Probe for CNC Machining

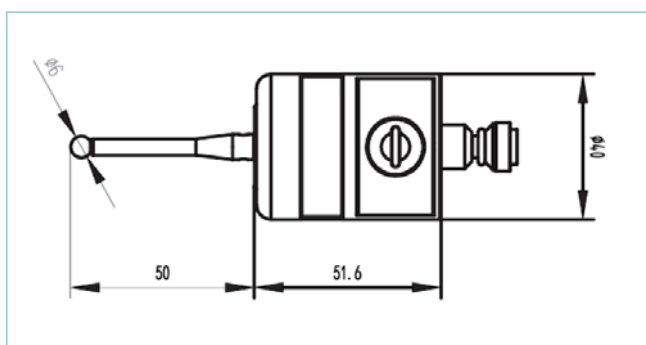
### Product features

	JPM450	JPM60
Size	D40xH51.6mm	D40xH68mm
Weight	270g(without Shank & Batteries)	320g(without Shank & Batteries)
Transmission Type	360° infrared optical transmission	
Switch-on/Switch-off	Automatically	
Stylus Overtravel Limits	X Y±15°, Z+5.0mm	
Stylus Trigger Force	XY=1.0N, Z=6.0N	
Unidirectional Repeatability	≤1μm(2σ)	
Operating Range	1.0m(Short-range)/3.0m(Medium Range)/5.0m(Long-range)	
Sealing	IP 68	
Operation Temperature	0°C to 60°C	
Battery	2 × ½ AA 3.6 V Lithium-thionyl chloride	
Battery Life	500 days maximum (5% usage per shift)	
Special Feature	Collision Protection	
Multiple shank options	BT30,BT40	BT30,BT40,BT40,BT50

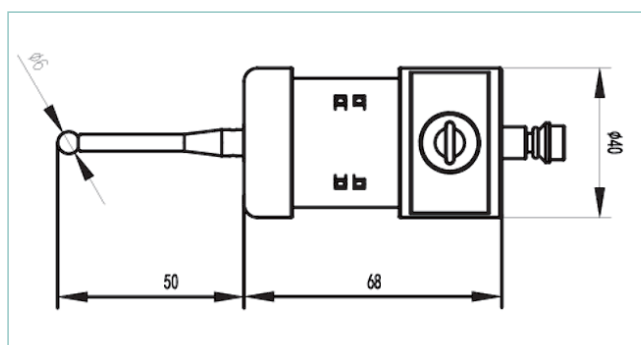
\* For special measurement requirements, customized probing solutions are available.

### Dimensions of IR Touch Probe

JPM450



JPM60



## Radio Frequency Touch Probe for CNC Machining

Delivering micron-level accuracy, our radio frequency (RF) touch probe enables automated workpiece alignment, in-process inspection, and tool setting—reducing setup time, eliminating manual errors, and ensuring consistent part quality.

With robust, omnidirectional RF signal transmission, it operates reliably on machines of all sizes—even in deep cavities or complex fixturing where line of sight is blocked. Ideal for large gantry mills, multi-sided machining centers, and high-precision molds or aerospace components.

Fully compatible with FANUC, Siemens, Heidenhain, Mitsubishi, Makino, Brother, and other major CNC controls.



### Highlights

- Long-range, stable signal transmission  
Reliable operation on large gantry machines and deep-cavity applications
- High anti-interference performance; supports multiple probes in the same area  
Uses the 2.4GHz industrial band with unique ID encoding to prevent cross-talk
- Modular quick-swap design for fast maintenance  
Critical components are integrated into replaceable modules—reducing service time and cost
- Ultra-low power consumption with auto sleep/wake
- Smart collision protection: automatic emergency stop on abnormal contact  
Preventing crashes and protecting both probe and spindle
- Simplified wiring: only 3 signal wires to CNC I/O  
Faster installation, fewer errors
- 1.00  $\mu\text{m}$  ( $2\sigma$ ) repeatability

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## Radio Frequency Touch Probe for CNC Machining

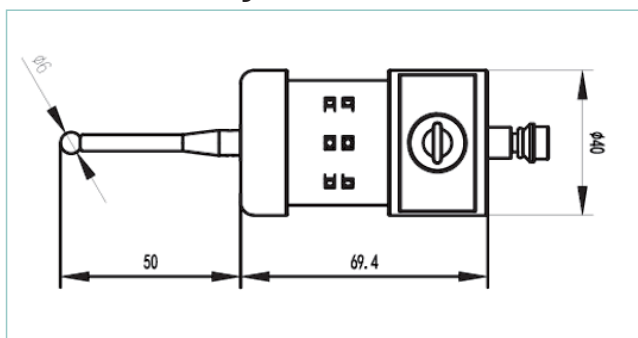
### Product features

	JPM400	JPM46M
Size	D40xH69.4mm	D40xH75mm
Weight	320g(without Shank & Batteries)	536g(without Shank & Batteries)
Transmission Type	2.4GHz radio frequency hopping transmission	
Switch-on/Switch-off	Automatically	
Stylus Overtravel Limits	X Y±15°, Z+5.0mm	
Stylus Trigger Force	XY=1.0N, Z=6.0N	
Unidirectional Repeatability	≤1μm(2σ)	
Operating Range	≤15m	
Sealing	IP 68	
Operation Temperature	0°C to 60°C	
Battery	2 × ½ AA 3.6 V Lithium-thionyl chloride	
Battery Life	240 hours maximum (5% usage per shift)	
Special Feature	Collision Protection	
Multiple shank options	BT30,BT40, BT50, HSK63A, HSK63F, HSK40E,HSK100A	BT30,BT40,BT50

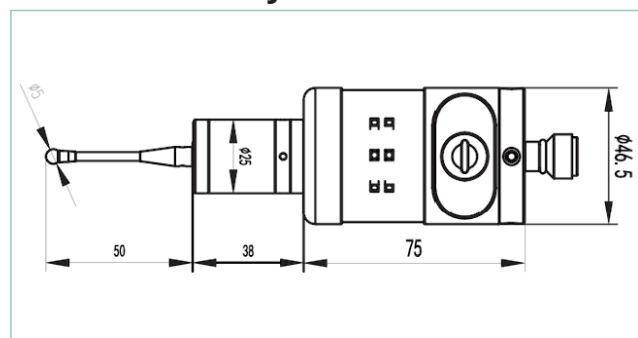
\* For special measurement requirements, customized probing solutions are available.

### Dimensions of RF Touch Probe

**JPM400**



**JPM46M**



## Multi-directional Tool Setting Probe(CTS-5)

The CTS-5 is a multi-directional touch-trigger tool setter with hard-wired I/O connectivity, delivering reliable broken tool detection and rapid, high-repeatability measurement of tool length and diameter.



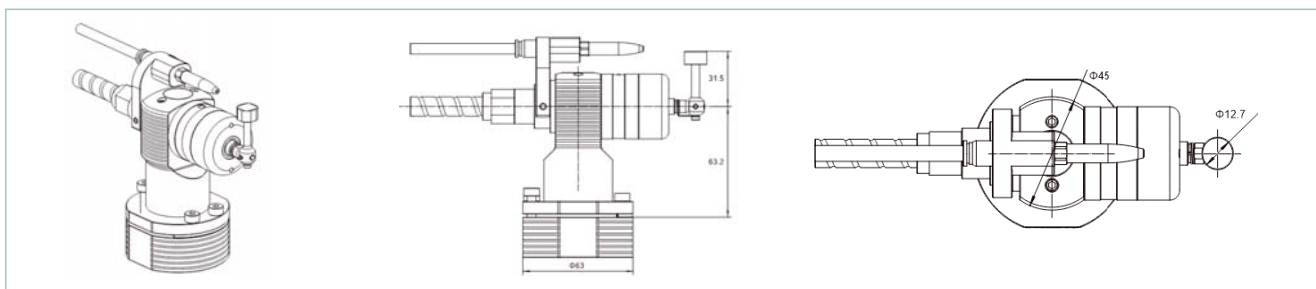
### Highlights

- Eliminates operator burden by reducing setup time by 90%,
- Prevents machining defects due to thermal displacement and wear
- Eliminates dangerous on-machine tool setting
- Proven kinematic design
- Cost-effective and reduce scrap
- 1.00  $\mu\text{m}$  2 $\sigma$  repeatability
- Automatically air blasting (Optional)

### Product features

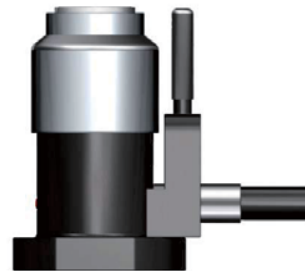
Compatible Interfaces		IF 40
Weight		375g(Including Stylus)
Transmission Type		Hard-wired transmission
Switch-on/switch-off		Automatically
Sense directions		X Y $\pm$ 12.5°, Z+5.0mm
Stylus Trigger Force		0.90N to 2.20N, 95gf to 225gf(Depending on sense direction)
Recommended Stylus		Disc stylus (Carbide,HRC75)
Unidirectional Repeatability		$\leq 1 \mu\text{m}$ (2 $\sigma$ )
Sealing		IP 68
Operation Temperature		0°C to 60°C
Cable	Specification	Diameter 4.5mm, 3-core screened cable,each core 7 x 0.3 mm
	Length	8m
	Electrical Connection	Cable on the end of unit
Mounting		M12 T bold

### Dimensions



## Z Axis Tool setting Probe (CT-20)

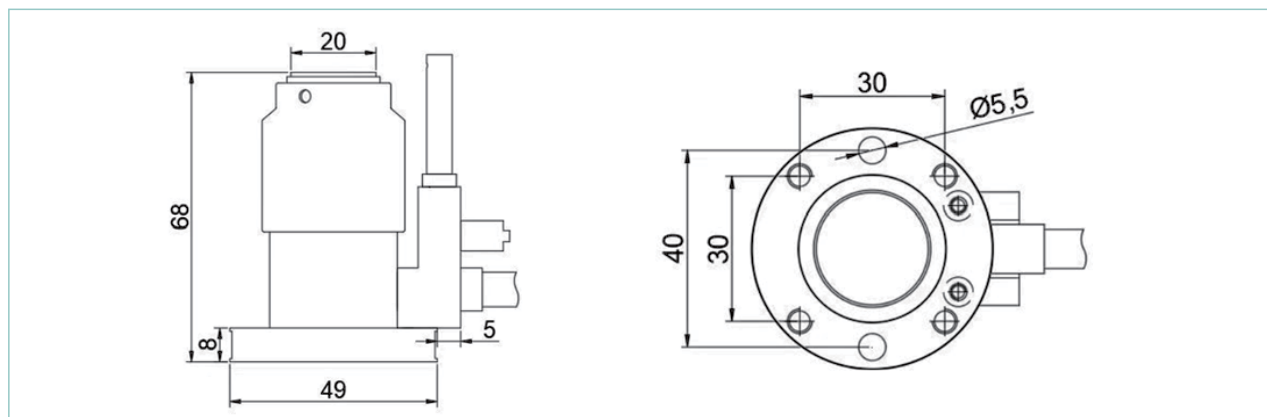
The CT-20 is a mono-directional touch-trigger tool setter used for setting tool length, checking the breakage and compensate for thermal growth on a CNC machining center.



### Product features

Contact diameter (Max)	D20mm
Height	68mm
Transmission Type	Hard-wired
Repeatability	≤2um,50-200mm/min
Sense Direction	+Z axis
Trigger Force	1.5N
Life Time	>500 million
Pretravel	5mm
Rating	DC24V±10% 20mA(max)
Sealing	IP 67
Cable	5m x 6-core screened cable
Operating Temperature	0°C to 60°C
Mounting	M5 x 25mm cap head screws(x4)

### Dimensions



## Laser-based Broken Tool Detection System

NTS-z is a single-sided system with a laser transmitter and a receiver incorporated in for broken tool detection. It performs ultra-quick and non-contact broken tool detection on vertical and horizontal machining centers, gantry machining centers, and multi-task machine.

Comparing to the conventional non-contact broken tool detection systems, it improves process reliability, reduce cycle time, non-productive time and scrap, increase productivity and profit.



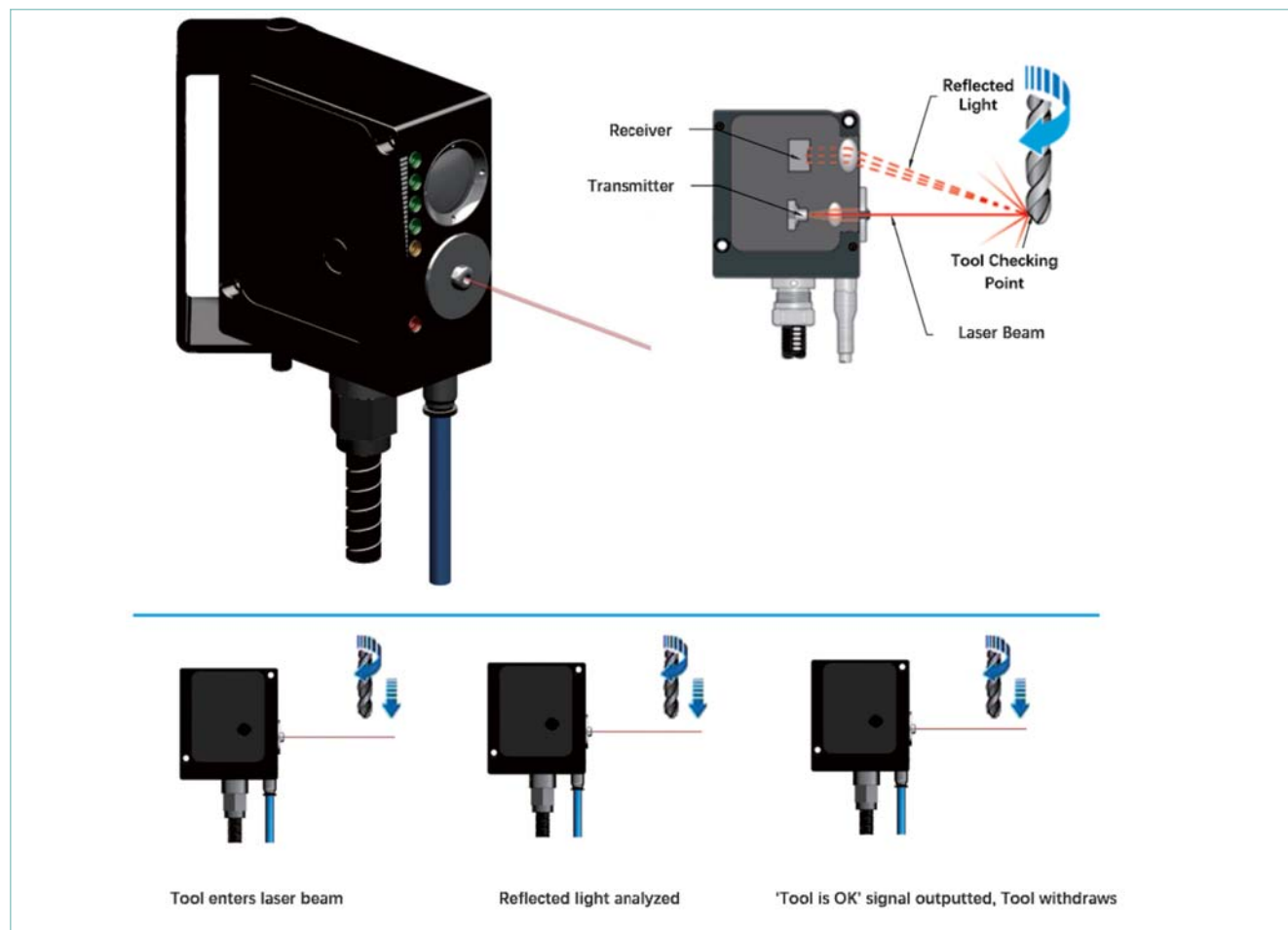
### Highlights

- Cost-effective, fast and reliable.
- Ultra-quick detection: Typically spends 0.6s on each detection.
- Simple installation and set-up.

### How it works?

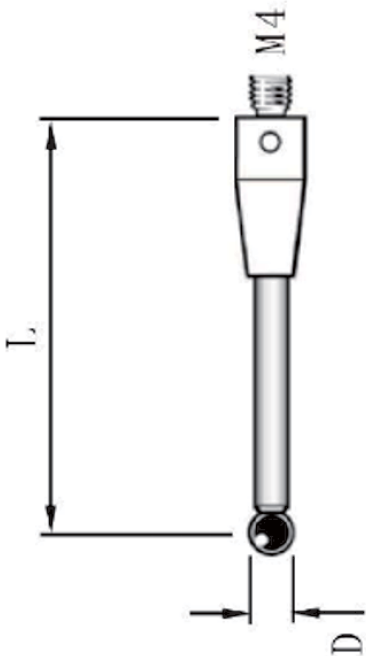
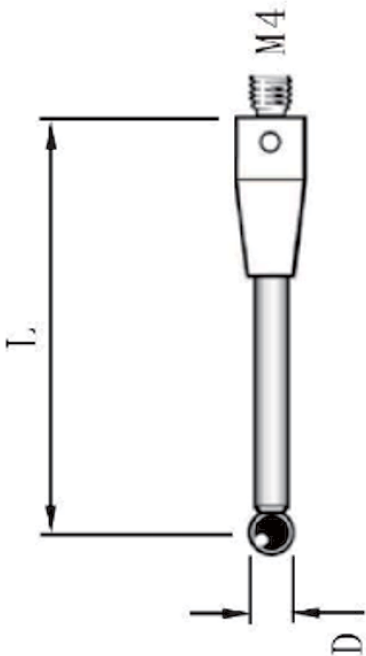
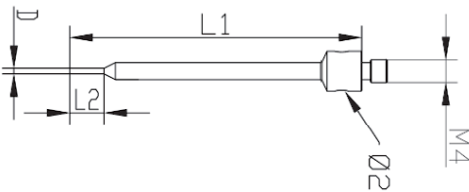
The detection system operates by emitting a laser beam to a tool and receiving the reflection from the tool. The laser transmitter and receiver are incorporated in the unit.

Typically, the laser beam is emitted from the unit and reflected off rotating tool, usually 3mm above the tool tip, and then back to the receiver. (Please refer to the below illustrations.)








**Accessories**

To achieve high accuracy with touch probes, it is important to select a stylus with high accessibility that matches the shape of the object and the environment in which it is used. When measuring with a touch-trigger probe, the machine uses the stylus to take the data points on the surface of the workpiece. We manufacture the stylus in our own factory; we offer customization according to the client's environment.

Item	Stylus Size	Diagram
Ruby Ball Stylus with Tungsten Carbide Stem	φ4*100L*M4	
	φ4*50L*M4	
	φ3*75L*M4	
	φ3*50L*M4	
	φ2*50L*M4	
	φ2*30L*M4	
	φ2*20L*M4	
	φ1*30L*M4	
	φ1*20L*M4	
Ruby Ball Stylus with Ceramic Stem	φ6*100L*M4	
	φ5*100L*M4	
	φ4*100L*M4	
	φ5*75L*M4	
	φ5*50L*M4	
	φ4*75L*M4	
	φ3*30L*M4	
Carbide Flat Tip Stylus	φ1*55L*M4	
	φ1*40L*M4	
	φ1*20L*M4	

Customized stylus is available

**Probe Selector**

Machine Type	Vertical Machining Centers			Horizontal Machining Centers			CNC Lathers	CNC Drilling and Milling	High Gloss Machine/ Grinding Machine
Machine Size									
	S	M	L	S	M	L	All	All	All
<b>Products</b>									
JPM60	●	●		●	●		●	●	●
JPM450	●	●		●	●		●	●	●
JPM400		●	●		●	●	●		
JPM46M		●	●		●	●	●		
CTS-5	●	●	●	●	●	●		●	
CT-20	●	●	●	●	●	●			
NTS-z			●			●			

**Compatible CNC Controls**

