

# What is probing?

Probing is traditionally associated with contact probes that are used for dimensional measurement (metrology) on co-ordinate measuring machines (CMMs). There are several types of probes that can be utilized. The contact probe measures the workpieces by making contact with them. The non-contact probe uses lasers, and the machine vision probes scan with optical sensors.

The two most common contact probes are Touch Trigger Probes and Analog Scanning Probes. A touch trigger probe has a stylus that is attached to a bearing plate. This is then connected to pressure sensors inside the housing of the probe. Each time the probe makes contact with the workpiece, it generates an electrical signal. The signal is sent back to the CMM to create precise measurements. The advantage of touch probes is that they are versatile and flexible. Furthermore, Analogue scanning probes are another type of stylus-based probes that are used for measuring contoured surfaces such as sheet metal assemblies. Unlike digital probes, which touch individual points, the analogue probe keeps constant contact with the workpiece taking measurements as it is dragged across it. Analogue scanning probes are extremely useful for collecting the measurement data for complex contoured shapes such as turbine engine blades, cams, automobile bodies, crankshafts and prosthetics.

On the other hand, A non-contact probe is essential for any workpiece that is likely to become deformed under the pressure of a contact probe. They are also useful for more complex, microscopic and high-precision workpieces. A non-contact probe is either laser-based or vision-based.

Laser probes work similarly to the touch trigger probe as opposed to using a stylus they use a concentrated beam of light to produce readings. This beam of light acts as an optical switch. When the beam is projected onto the part, the position will then be read by triangulation through a lens inside the probe receptor. This technique is similar to the one used by surveyors when they want to find a position or location with bearings from a known distance between two fixed points.

Vision-based probes are used for microprocessors and other very small parts. Rather than measuring the parts themselves, a mould is electronically digitised that will generate accurate dimensions for future workpieces.

The key benefit of a non-contact probe is that it facilitates the ability to collect data from a larger surface area in less time than is likely with contact probes. However, a disadvantage is that the accuracy of the readings is not as great as the contact probes. If you require speed over accuracy, then a non-contact probe is ideal. If you have a particularly complex essential part, you would be better suited to using a contact probe.

Do you have probing requirements? Contact our office for more information on how we can help with probing!

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