Mitutoyo

QVP Quick Vision Probe

Provides image measuring capability for coordinate measuring machines

The **QVP** probe performs form measurement by image processing micro geometry that cannot be measured by a contact type probe, or elastic bodies that are easily deformed by slight measuring forces. Although the method of microscopic measurement with a centering microscope mounted on the coordinate measuring machine has been used since coordinate measuring machines came into use in the industry, they have an inherent disadvantage in that the operation of identifying positions is dependent on the operator's eye, resulting in possible measurement errors. Even with a CNC coordinate measuring machine manual measurement must be performed sometimes, such as with an installed centering microscope. The **QVP** probe is a vision probe dedicated for coordinate measuring machines and was developed based on Mitutoyo's state-of-the-art technology, in order to enable full automation of image measurement with a CNC coordinate measuring machine.

Automatic detection of workpiece edge

The **QVP**-captured image will have various automatic edge detections performed by the dedicated software, VISIONPAK, and then various calculation processes (calculation of dimensions and geometrical deviations) will be performed by the general-purpose measurement program, Geopak.

Standard provision of white LED illumination

Since the **QVP** is equipped with the standard co-axial light running through the lens system as well as white-light LED ring illumination, which is bright and has a long service life, no auxiliary illumination is required. The light volume can be set to between 0 and 100% in 1% increments.

## Use with an Automatic Probe Changer

The **QVP** can also be mounted on an automatic probe changer, allowing full-automatic measurement with both contact and non-contact probes.

QVP Specifications

QVP main unit	CCD size	1/3 inch (B/W)			
	Optical tube magnification	0.375×			
	Illuminating function — Co-axial	White light LED source (built-in): Power dissipation 5 W or less			
	Illuminating function — Ring	White light LED source: Power dissipation 10 W or less			
	Mass	Automatic-joint type: 315 g, shank type: 390 g			
	Optical magnification	0.375×	1.125×	1.875×	3.75×
	Observation range (mm)	9.6×12.8	3.2×4.3	1.9×2.6	1×1.3
	Working distance (mm)	61	72.3	61	51
Objective	Magnification	ML1× Optional	ML3× Standard	ML5× Optional	ML10× Optional
	Numerical Aperture (N.A.)	0.03	0.09	0.13	0.21
	Depth of focus (μm)	306	34	16.3	6.2
	Mass	80 g	55 g	60 g	95 g
QVP I/F BOX	Supply voltage	AC100 to 240 V			
	Frequency	50/60 Hz			
	Power capacity	30 W			
	Mass	3800 g			

Dimensions

ø70

50
ø25
66
26 40
32
113
182.7
37.7
W.D.=72.3

QVP-A
(Auto joint type)
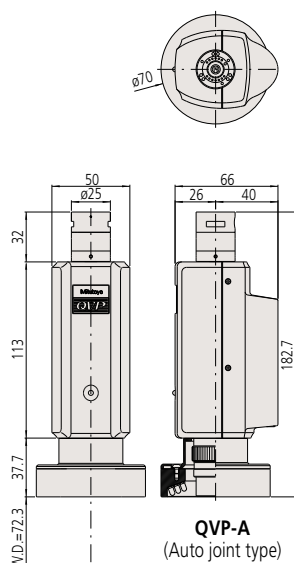
Unit: mm

Optional accessories

Objective ML1X (**375-036-2**)
Objective ML5X (**375-034-1**)
Objective ML10X (**375-039**)

Calibration gage (**02AQC310**)
• Gage for sharing the coordinates between the QVP and contact-type probe

Calibration chart (**02AKN020**)
• Gage for calibrating a single QVP unit

Data processing unit

**• Dedicated data processing software VISIONPAK**
VISIONPAK operates under the Microsoft Windows operating system and is a general-purpose measurement program for coordinate measuring machines. It displays the image window when it detects a workpiece edge. After detecting an edge, it undertakes various calculations with the regular general-purpose measurement programs.

• Wide variety of image processing functions
With its powerful image processing functions (tools), it can detect various forms of edges at high speed. It can measure in the height direction by means of its auto-focus function, and save the captured image as the image data (bitmap format).

• Outlier removal function
In ordinary micro-form measurement it is often difficult to remove burrs and dusts from the objective workpiece, resulting in an inevitable measurement error. In contrast, VISIONPAK can recognize, for example, the obstruction as an "outlier" and bypass it during measurement.
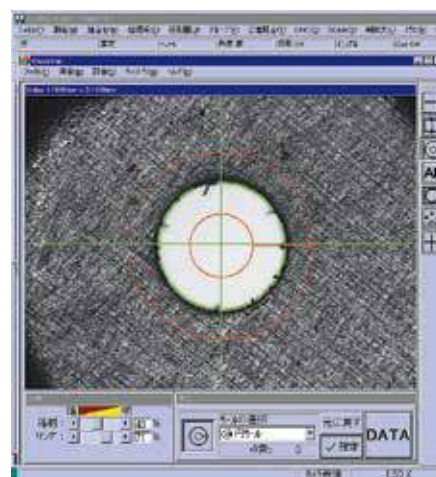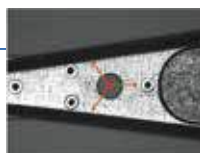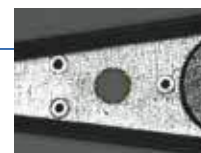
VISIONPAK Image Processing Tool

Simple tool

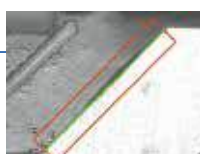Used for detecting a single point on the edge pointed to by the arrow.

Manual tool

Used for detecting an optional position pointed to (clicked on) by the mouse.

Box tool

Used for multiple-point line measurement of an edge caught in the box

Centroid tool

Used for detecting the center of gravity of an optional form.

Circle tool

Used for multiple-point measurement of a circle for the objective circular edge. As with the box tool, it can collect data that is free from the effect of burrs and dust.

Edge self-tracing tool

By simply specifying the start point and measurement interval, the objective edge can be detected while automatically tracing an unknown geometry.