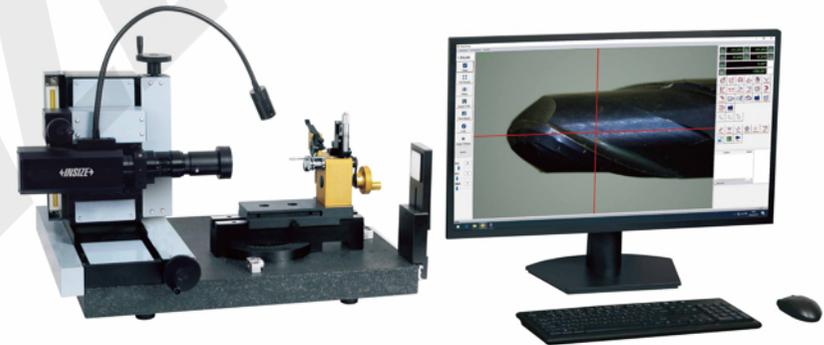


TLP-D150

CUTTING TOOLS VISION MEASURING SYSTEM OPERATION MANUAL



www.insize.com



<https://m.insize.com/page-212-1212.html>



EN -- Please scan the QR code or visit the website for operation manual.

IT --- Scansiona il codice QR oppure visita il sito web per il manuale d'uso.

CZ -- Pro návod prosím naskenujte QR kód nebo navštivte webovou stránku.

ES -- Por favor, escanee el código QR o visite la página web para ver el manual de instrucciones.

FR -- Veuillez scanner le QR Code ou visiter notre site web pour accéder aux manuels d'utilisation.

DE -- Bitte scannen Sie den QR-Code oder besuchen Sie die Website für die Bedienungsanleitung.

PT -- Para aceder ao manual de instruções, por favor, faça a leitura do código QR ou visite o nosso site.

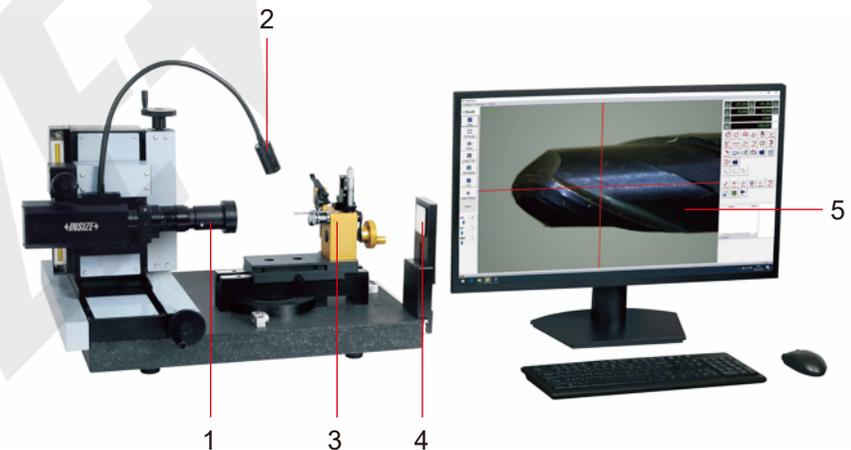
MN-TLP-D150-E

V1

Maintenance and upkeep

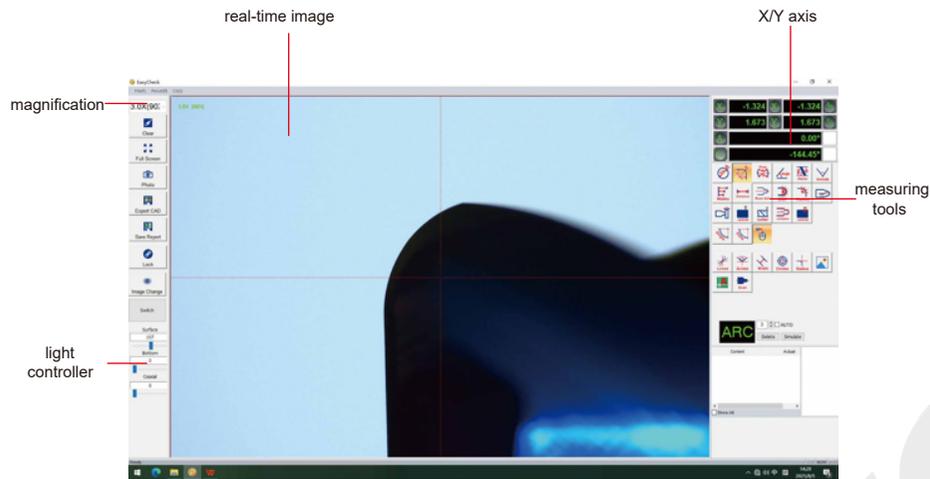
1. The instrument should be placed in a clean and dry room (room temperature of $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$, humidity below 60%) to avoid surface contamination of optical components, rusting of metal parts, and dust and debris falling in, which may affect the performance of the instrument.
2. After using the instrument, the working surface should be wiped clean at any time.
3. The transmission mechanism and motion guide of the instrument should be regularly lubricated to ensure smooth movement and maintain good working condition.
4. If you find that the instrument lens is unclear, you can first contact the manufacturer and operate under their guidance. You can use a dust-free cloth or degreased cotton dipped in a small amount of anhydrous alcohol to gently wipe it clean.
5. The LED light source of the instrument has a long service life, but when the LED is burned out, please still notify the manufacturer and have a professional replace it for you.
6. Precision components of the instrument, such as imaging systems, workbenches, optical rulers, and transmission mechanisms, need to be precisely calibrated. All adjustment screws and fastening screws have been fixed, and self disassembly may cause instrument malfunctions or reduced accuracy, which is not covered by the warranty.
7. The data processing software of the instrument has accurately compensated for the error between the workbench and the optical ruler. Please do not make any changes on your own. Otherwise, incorrect measurement results may occur.
8. All electrical connectors of the instrument should generally not be removed. If they have been removed, they must be correctly inserted according to the markings and the screws must be tightened. Incorrect insertion can affect the functionality of the instrument, and in severe cases, it may damage the system.

Structural



- 1: surface illumination
- 2: universal light
- 3: clamping device
- 4: contour illumination
- 5: computer (included)

Software



Software function

- ◆  Measuring the diameter of a circle.
- ◆  Measurement of arc radii and angles.
- ◆  Measuring the groove pattern on the tool.

- ◆  Pick a line and measure the angle between that line and the horizontal.
- ◆  Select two lines and measure the angle between the two lines.
- ◆  Measure the band width and helix angle of the tool.
- ◆  Measure the width and angle of the cutting edge of the tool.
- ◆  Measure the distance from point to point.
- ◆  Scanning of the tool profile and CAD files can be generated.
- ◆  Measure the dimensions of the round head cutter.
- ◆  Contour Comparison function, which allows you to compare the contour with the saved CAD contour file.

- ◆  Lines
Comparison angle function.
- ◆  2Lines
Clip angle comparison function.
- ◆  Width
Width comparison function.
- ◆  Circles
Circle comparison function.
- ◆  Radius
Arc comparison function.
- ◆  CAD
CAD comparison function.
- ◆  Clear
Clear function. Used to clear the measurement parameters from the screen.
- ◆  Full Screen
Full screen function. When clicked, you can go to full screen and hide other interfaces.

- ◆  Photo
Camera function.
- ◆  Export CAD
Export CAD function.
- ◆  Image Change
Light source switching function. Can be switched to surface light, bottom light, coaxial light.

Working principle

The measured tool is placed on the tool fixture, irradiated by parallel bottom light or ring surface light through the zoom lens imaging on the CCD chip inside the camera, and then converted into electronic signals through photoelectric transmission to the computer, and displayed in the image area of the measurement software, through the measurement software function of the image area of the image of the workpiece or the contour of the automatic capture measurements, you can get the tool on the precision of the characteristics of the dimensions, and can be the dimensions of these Graphic and data information can be exported to the report archive.

Measurement method

- ◆ Contour measurement
Measurement of tool contour edges. Parallel contour light source is generally used, and surface light can also be added to do auxiliary illumination when needed, so that the measured edges are clearer and more conducive to measurement. Measurement of the size of the arc of the ball head, the size of R, the taper of the tool, molding profile measurement.

◆ Surface measurement

The TLP-D150 is capable of measuring almost all visible surface dimensions under surface light illumination. For example, the core thickness of the tool, groove type, tooth gap angle, the width of the cutting edge belt, the grain of the grinding wheel, chipping, etc. can also be easily observed and measured its size. and chipping of grinding wheels, etc. can also be easily observed and measured.

Measurement example

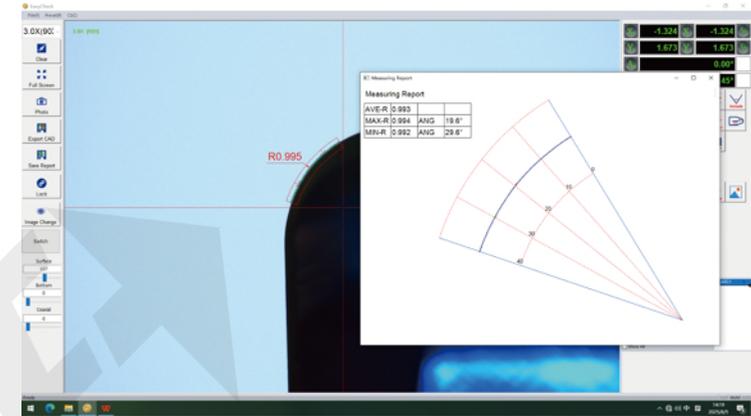
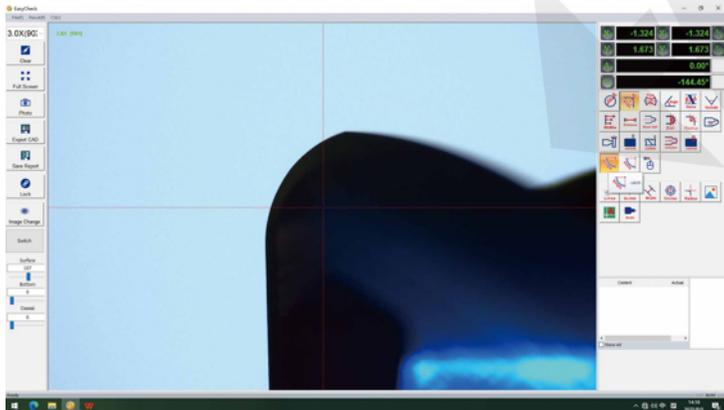
- ◆  Measurement of arc radii and angles.

 There are three measurement modes:

-  1) Direct measurement (3 points)
-  2) Segmented measurement
-  3) Manual point selection

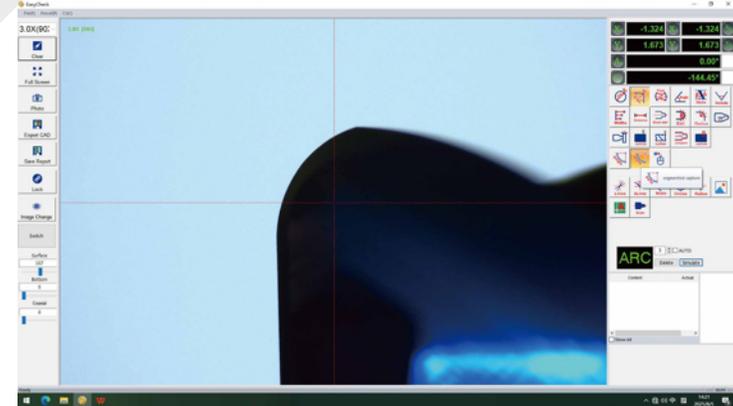
1) Direct measurement (3 points)

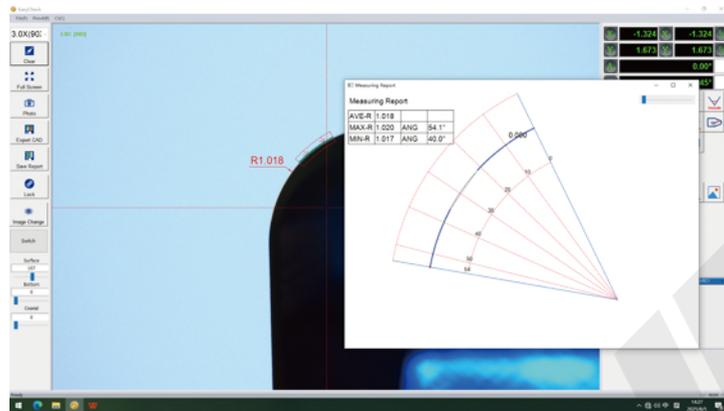
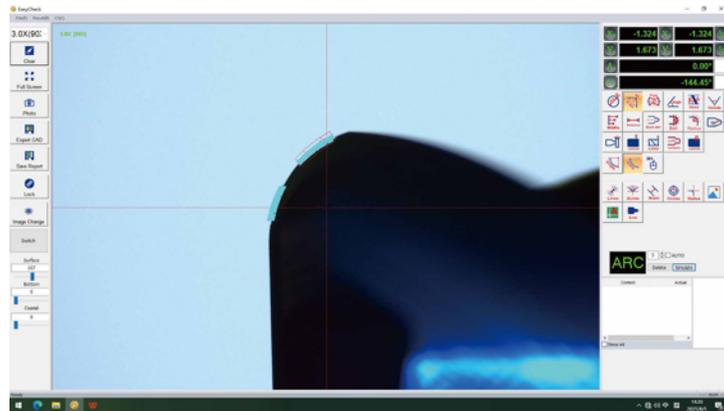
After focusing clearly, select three points on the arc, then double-click to measure the arc and generate a report. The measurement report can be enlarged or reduced to view the measurement results.



2) Segmented measurement

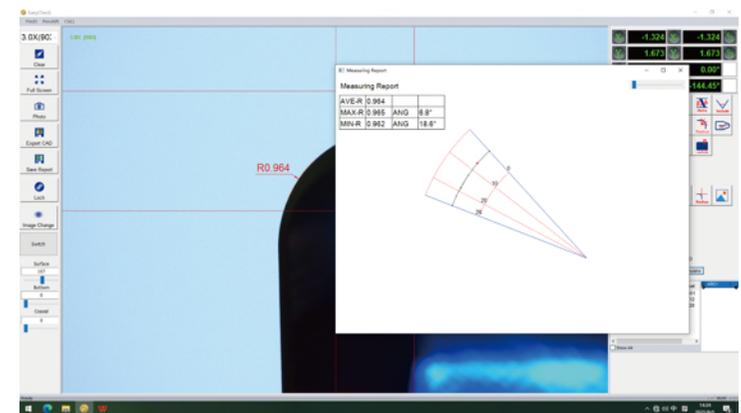
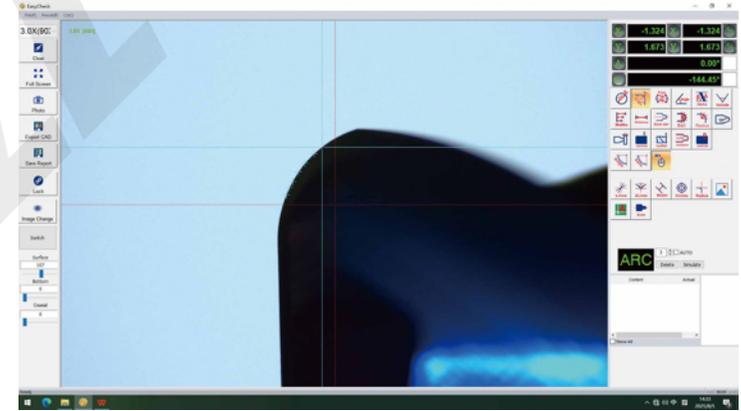
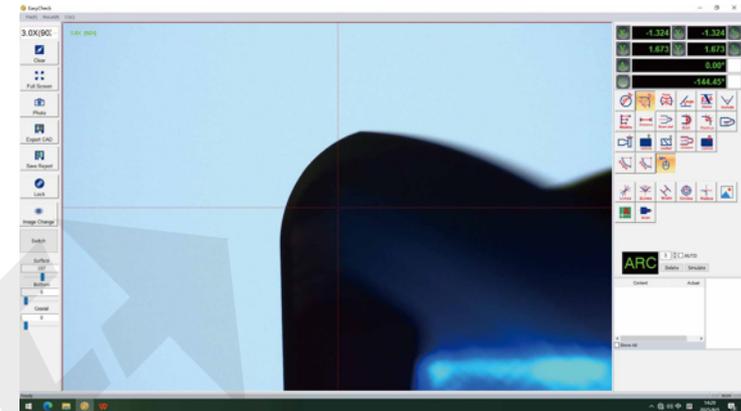
The number represents the number of fitted arcs. AUTO function: Check the box to activate it. When the number reaches the set number of fitted arcs, the result will be calculated automatically. After selecting the arcs, click "simulate" to fit them.





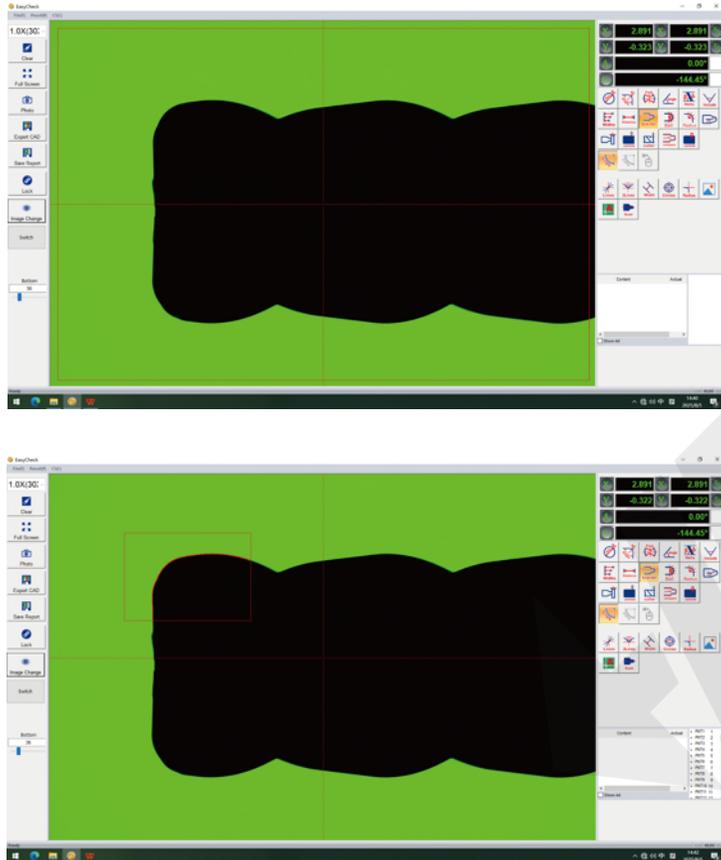
3) Segmented measurement

You can set the number of manual sampling points, with a minimum of 3. AUTO function: After checking the box to activate it, when the number reaches the set number of sampling points, the result can be calculated automatically. After sampling is complete, click "Simulate" to fit. When the crosshairs change color, it means that the contour has been selected.



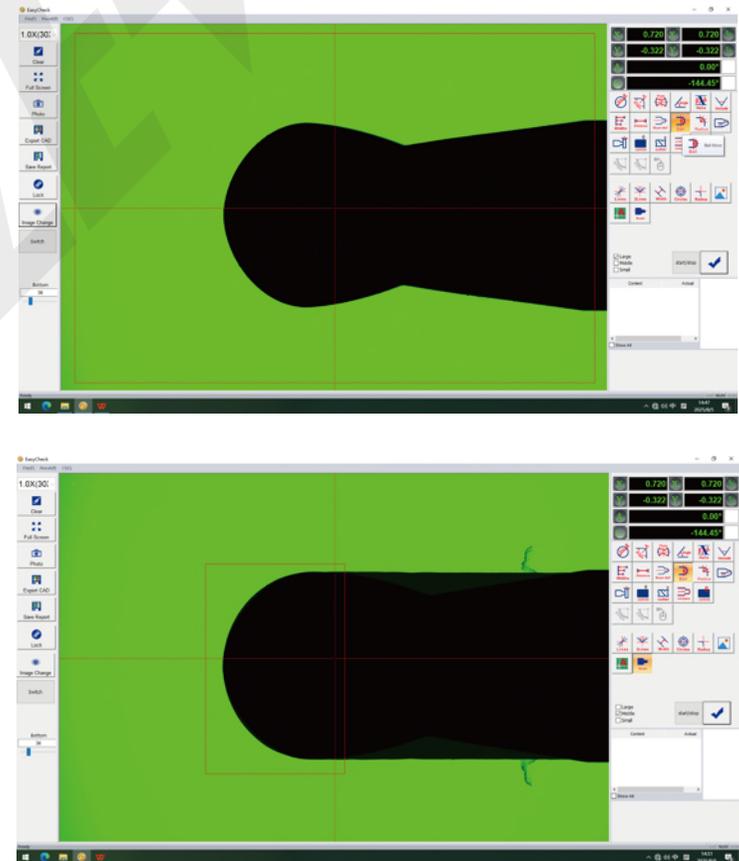
- ◆  Scanning of the tool profile and CAD files can be generated.

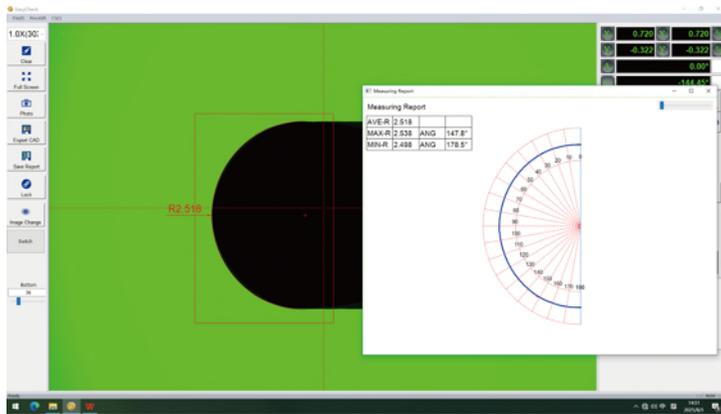
After clicking, a box will appear for the measurement area, and you can freely select the size of the area. Double-click within the area to scan the contours within the area, then click “Export CAD” to generate a CAD file for this contour.



- ◆  Measure the dimensions of the round head cutter.

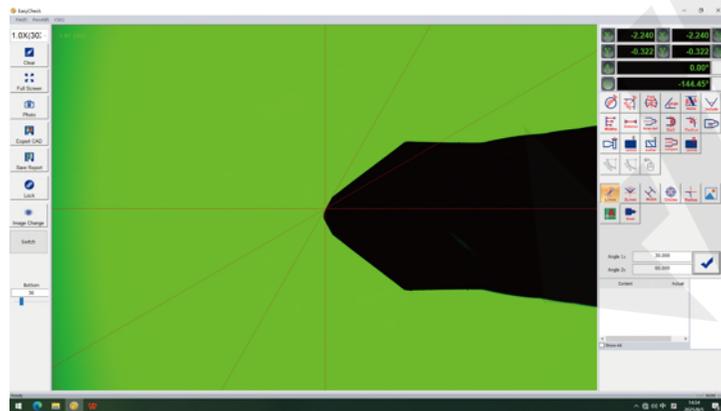
Use in bottom light mode. After focusing clearly, use the “Scan” function, rotate the concentric fixture, and after the largest contour appears, click the ball head tool. A measurement area box will appear on the screen, and you can freely select “Large/Middle/Small.” Move the measurement area to the ball head position, click the check mark, and the ball head size will be calculated directly.





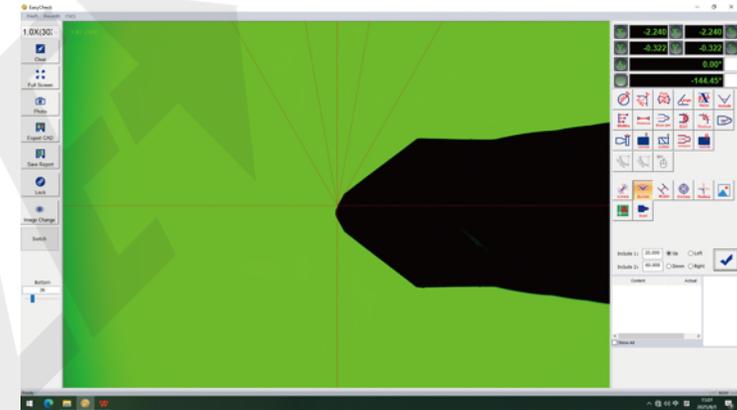
Comparison angle function.

Enter the desired angle of the line in the box, click “Check,” and it will be generated.
 Note: The angle entered is the angle between the line and the horizontal line.



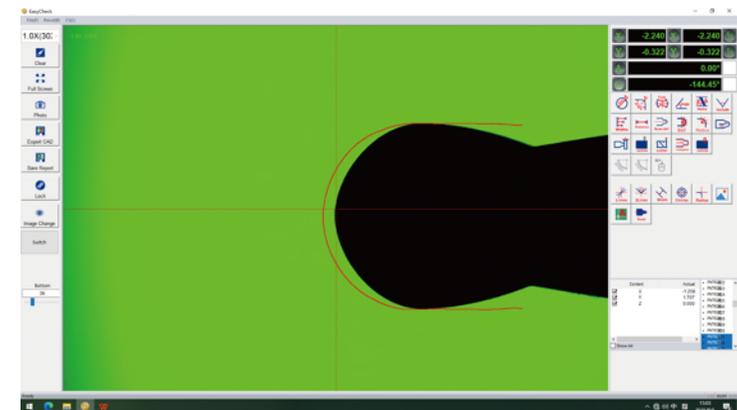
Clip angle comparison function.

Enter the desired angle and select the display area “Up”, “Down”, “Left” or ‘Right’, then click “Check” to generate.
 Note: The angle entered is the angle between the two lines.



CAD comparison function.

Select the CAD file you want to import. You can drag and drop CAD graphics to the desired location in the software.



Specification

Measuring range(X×Y)	150×60mm
Applicable range	0~40mm
Resolution of X/Y axis	1μm
Accuracy of X/Y axis	5μm
Repeatability of X/Y axis	2μm
Objective	0.58X~8X(zoom)
View field(diagonal length)	2.0~29mm
Working distance	68mm
Magnification	20X~240X(on 27" monitor)
Camera	color CCD, 0.3M pixl
Illumination	surface and contour with adjustable LED, with universal light

Attention

- ◆ This machine does not have an explosion-proof structure, do not use in the environment of combustible gases.
- ◆ Turn off the power when not in use for a long time.
- ◆ Unplug the power cord as much as possible during a thunderstorm.
- ◆ Do not open the housing or plug or unplug the scale before the power is turned off.
- ◆ Do not press any objects against the power cord. The power cord should be arranged in such a way that it does not obstruct the movement of people or the operation of the machine.