

# Cutting Tool Inspection System

## TRACE 900

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The TRACE 900 Cutting Tool Inspection System is a universal measuring machine for drills, milling cutters and counters and countersinks under flexible illuminating system. Thanks to the compact design and great stability, the TRACE 900 can be employed in the metrology laboratory, receiving inspection, or directly in production.

The TRACE 900 Cutting Tool Inspection System is configured with SMARTOOL measuring software, which makes it the best instrument for all types of metal cutting tools, starting from fast checking of single criteria, such as the outer contour or angles, to complete control of special tool geometries. Users can easily achieve a PUT-MEASURE-ANALYSE measuring process with the TRACE 900, which offers high working efficient in the cutting tools quality control application. The measurement results can be easily exported to a detailed report in excel format or a CAD file for further analyse and reverse engineering.



The TRACE 900 is with ergonomic design and solid construction, which make it the ideal solution for shop floors QC application. The TRACE 900 can be placed directly next to the CNC grinding machine. Contact-free measurement avoids damage to the cutting edges and documents the condition of the cutting edges. Intuitive operation is available base on high resolution image display, auto-detective of the edges, contour / surface lighting free switch and dynamic curve view. Users can always get high accuracy measuring result and detailed report from the instrument.



## Advanced Design

- Ergonomic design and solid construction.
- HD image capturing and display combination, also microscope magnification level is optional.
- Stable and accurate V block fixture for easy tools holding and alignment.
- Mechanical fixed measuring angle of 0 degree and 90 degrees are available on the rotary stage.
- High accuracy encoder is embedded in the rotary table, offers precise angle location for users.
- Multiple section programmable LED ring light for surface illumination, also including contour lighting and free angle auxiliary light for standard features.
- SMARTOOL measuring software offers specific measuring function for cutting tools.
- Automatic edge detection, fast angle measurement with reticle, CAD element comparison functions are available.
- Measuring result fast output to EXCEL file report or CAD file.
- All-in-one PC system makes the machine more stable.

## Parameters

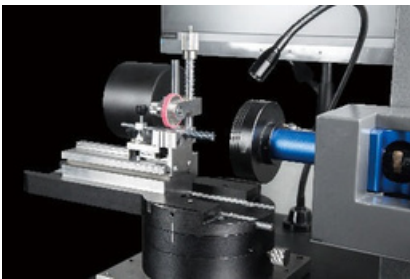
Item	TRACE900
X axis travel	80mm
Y axis Travel	60mm
Z axis measuring range	60mm
Max tool Diameter	2~20mm
Max tool length	0~200mm
Working distance	90mm
Lens	0.7x ~4.5x dented zoom lens
Camera	2MP HD camera / 5MP HD camera (optional)
Linear scale resolution	0.0001mm
Magnification	12.6x ~79.2x / 25.2x ~158.4x (optional)
Field of view	27x20mm ~ 4.3x3.3mm / 13.5x10mm ~ 2.3x1.6mm (optional)
Measuring accuracy	X ~ Y, $(2.5 + L / 100) \mu\text{m}$ , L is the measured length
PC	All-in-one PC system, Windows 10 OS, with 24" LCD monitor
Illumination	8 sections LED ring light, contour light and flexible auxiliary light, all software control and programmable
Input format	DXF files
Output format	EXCEL, DXF



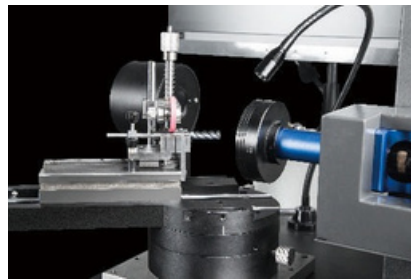
## Multiple Angles Measuring

For a more fast and precise tools angle location during the measuring process, the rotary table of the TRACE 900 offers 2 mechanical fixed angles, 0 degree and 90 degrees. At the 0 degree position users are able to measure Tool End, Tool End - Center shaft, Tool End - front angle, etc. And 90 degrees position is available for Helix angle, Axial Front angle, First Rear angle, Second Rear angle and Tilting Edge angle, etc.

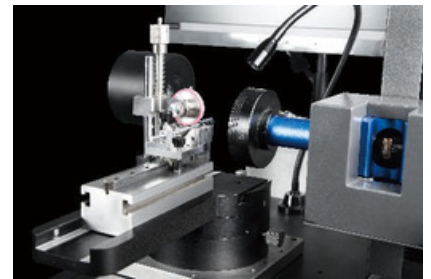
If other angle location should be required, users can also use the accurate encoder which is embedded in the rotary table to obtain. The angle reading displays in the software.



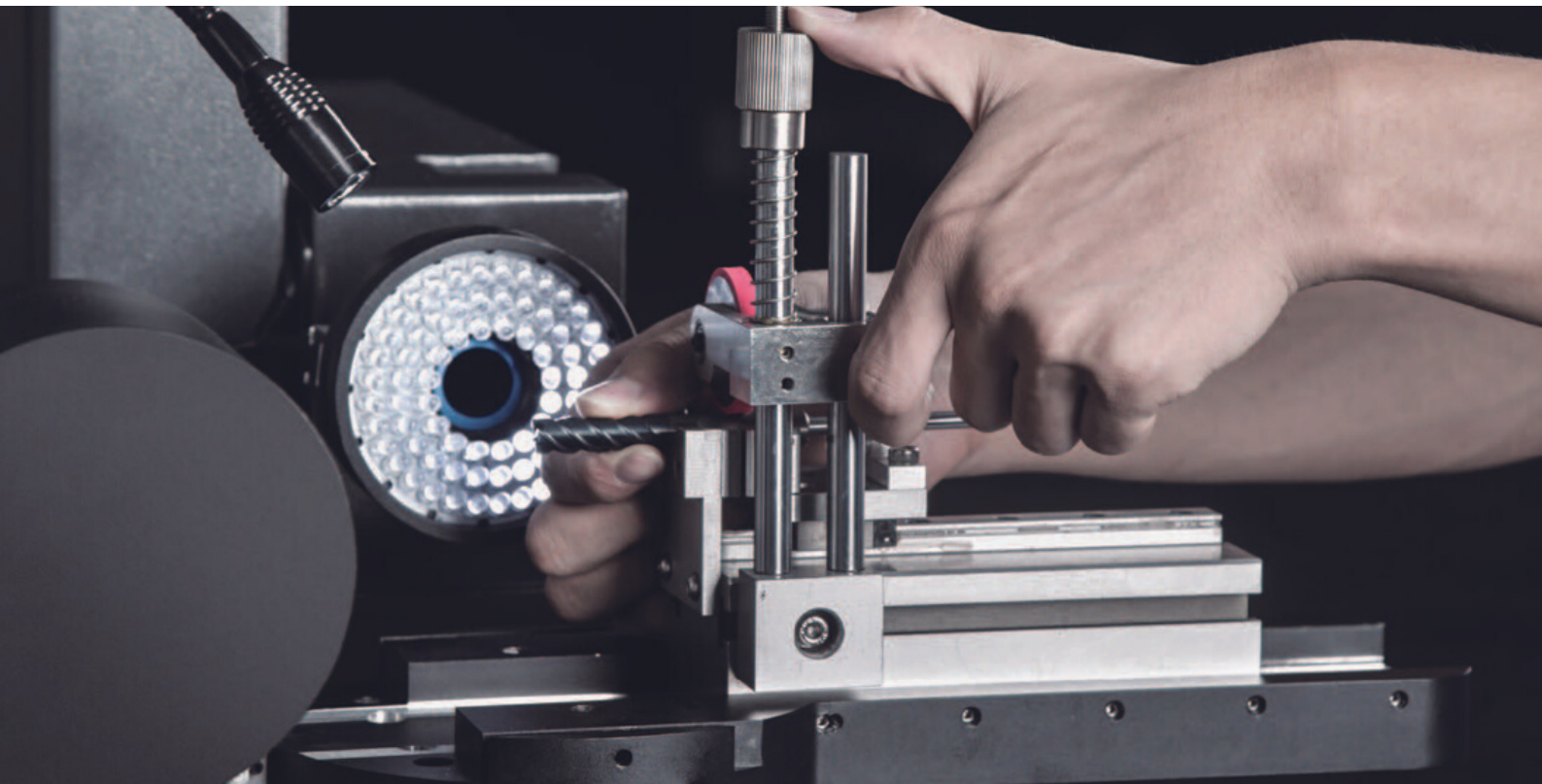
0 degree



45 degrees



90 degrees

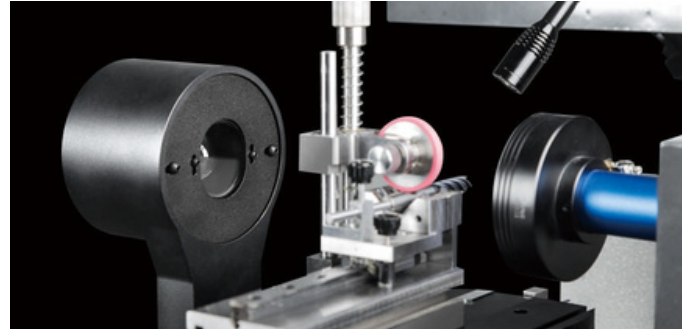




## Standard Accessories

### Free angle auxiliary light

A dimmable additional light is available on a flexible arm. Which helps the users to get a local enhance image.



### Contour light module

The TRACE 900 is including a parallel light path contour LED light module, which is movable along the X axis direction, offers the best image and sharp edge of the object view to the user when measuring the contour of the tool.



### Base table

Solid standing work station with practical and open-view storage space for storage of materials and tools.



### Tools holder

A multiple section tools holder is embedded at the side of the machine. Users can hold all the tools in order for preparation to avoid confusion.



# SMARTOOL Measuring Software

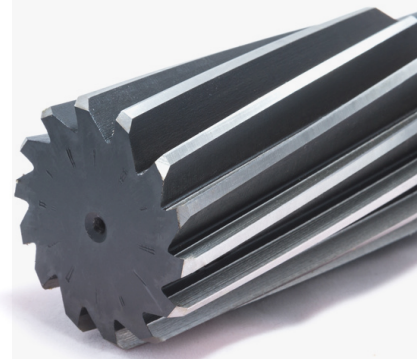
Leading cutting tools measuring solution

The SMARTOOL Cutting Tool Measuring Software is developed based on high accuracy optical and digital measuring technology, it is easy and intuitive to operate and offers numerous measuring and evaluation algorithms specifically for tools manufactured or sharpened in grinding business.

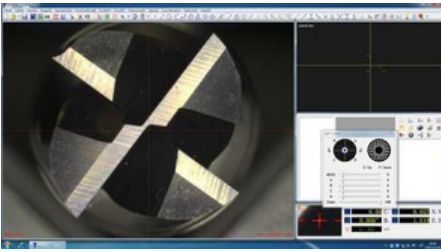
Sharp, high-contrast views at all magnification. All magnification are calibrated. High zooming level allows analysis of even the smallest surface details or the inspection of micro-tools.

Intuitive and easy-operating software interface - for fast and easy measurement application, all function keys and operation panel are graphical, and the automatic edge detection function helps to eliminate the measuring result difference of different operators.

Free switch between object image view and real time contour curve view - users are able to get the observation and measure the max edges of the tools during dynamic rotating process. Advanced calibration and compensation process - the SMARTOOL software offers advanced calibration and compensation function, highly increase the accuracy of the measurement.

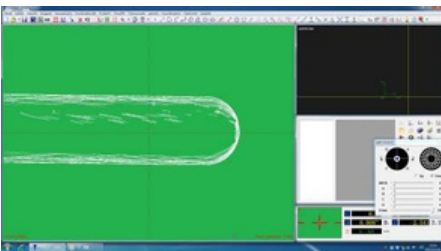


## Leading Features



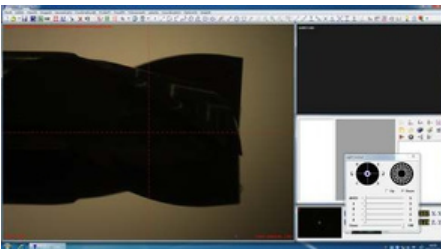
### Easy operation

High resolution image display and graphical operation interface. All function keys and control panel are displayed on the software window.



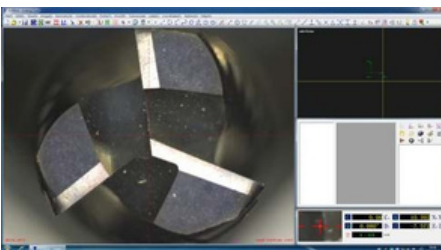
### Dynamic real-time curve view

The software offers real time edge detecting curve view, makes the edge analyse and measuring more intuitive and clear. Users are able to switch to the curve view mode at any time during measuring process.



### Fast angle measuring with retical

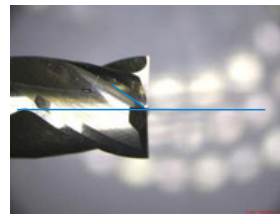
The reticle displayed in the image area of the SMARTOOL software is freely rotatable and able to display angles. Users can achieve fast angle measuring easily by using the reticle for edge comparison.



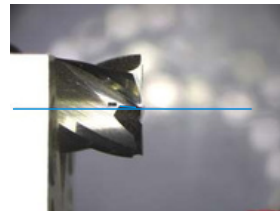
### CAD comparison

The SMARTOOL measuring software is supporting CAD comparison function. Users can directly import the CAD drawing of the tool to the software as reference, and compare the real image to the drawing to evaluate the geometries of the cutting tools.

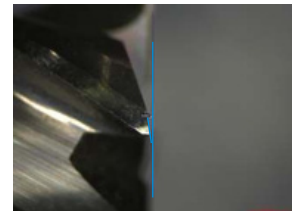
## Measuring Capability



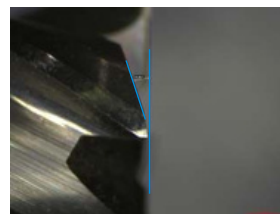
Helix Angle



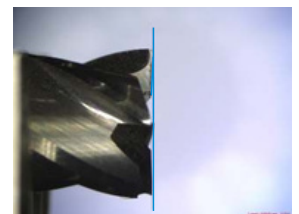
Axial Front Angle



First Rear Angle



Second Rear Angle



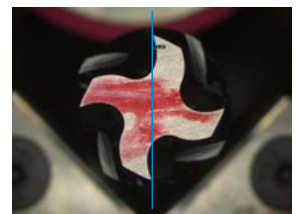
Tilting Edge Angle



Tool End



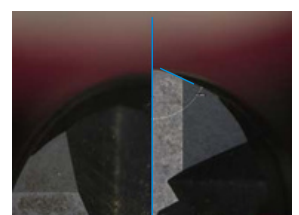
Tool End - Center Shaft



Tool End - Front Angle



First Rear Angle



Second Rear Angle

Specifications are subject to change without any obligation on the part of the manufacturer.

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