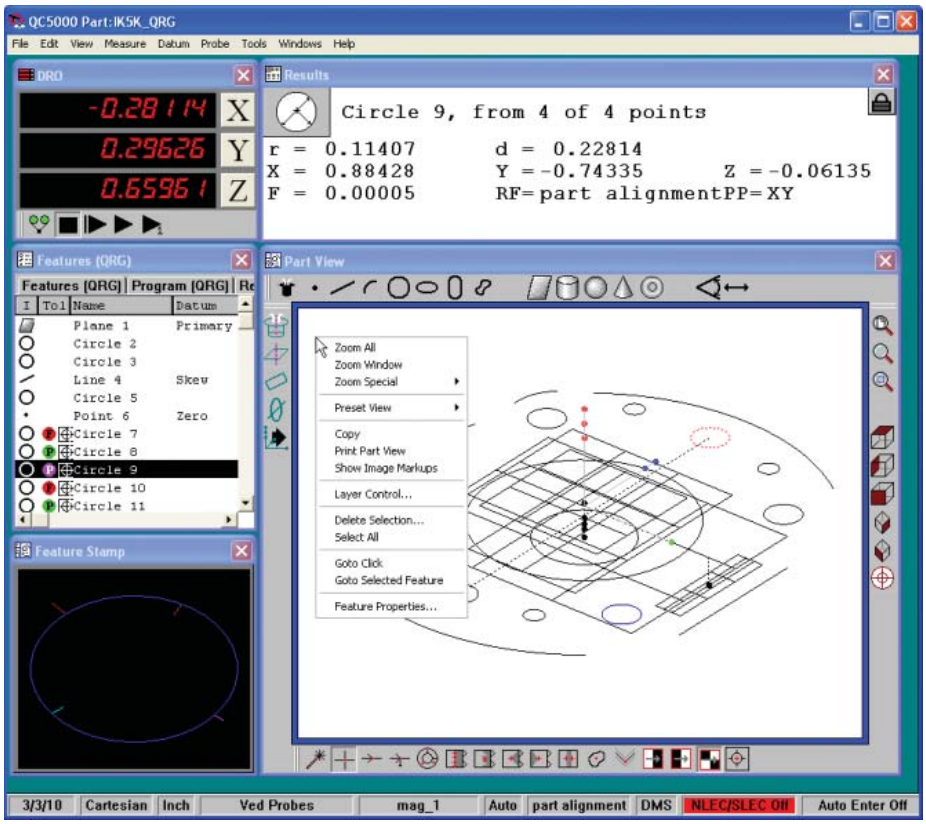
IK 5000 QUADRA-CHEK
– the Universal PC Package Solution for Measuring Machines

IK 5000 QUADRA-CHEK, the universal PC package solution for 2-D and 3-D measuring tasks, is equally suitable as initial equipment on a machine as well as for retrofitting. It is available in versions for three or four axes, and the optional expansions make it ready for all coordinate measuring technology applications and for video measuring microscopes. You can use it to measure two- and three-dimensional geometries and their relationships.

Description
The IK 5000 QUADRA-CHEK consists of the IK 5000 slot card for the PC as well as the additional necessary slot covers, and the corresponding PC software. Once installed on your PC you will have a powerful measuring station.

System requirements
The following is necessary for running QUADRA-CHEK (data for 3D-Profiling option in italics):
- PC: ≥ dual-core Pentium, 2.66 GHz (*quad-core Pentium, 2.8 GHz*)
- Operating system: Windows XP, Vista, 7 (32 bits)
- RAM: ≥ 1GB (*2 GB*)
- Hard disk: At least 500 MB (*1 GB*) available
- One PCI slot and one, two or three additional empty slots, depending on the version
- Screen:
  Resolution at least 1024 x 768 pixels;
  for the video function: 22" widescreen, resolution at least 1680 x 1050 pixels

Configuration
Various versions of the IK 5000 are available. Please see the configuration table for the model designations and various functions supported.



User interface
The IK 5000 QUADRA-CHEK screen shows various configurable windows and tool fields for clear and simple operation.

The **Part View** window shows the measured features with the accepted measuring points. You can also define relationships here.

The **Video** window (only in the version with video evaluation) shows the video image in real time.

The **Template** windows list all measured features, relationships and constructed features together with their values and tolerances in tables.

The feature currently being measured is shown in the **Feature Stamp** window. The **Results** window contains all corresponding information.

The current measuring position is shown in the **DRO** window.

	IK 5294	IK 5293	IK 5394-EG	IK 5394-3D	IK 5493	IK 5494-2D	IK 5494-3D	IK 5594
Axes	**4** XYZQ	**3** XYZ	**4** XYZQ	**4** XYZQ	**3** XYQ	**4** XYZQ	**4** XYZQ	**4** XYZQ
2-D geometries	●	●	●	●	●	●	●	●
3-D geometries	–	●	–	●	–	–	●	●
Optical edge detector	–	–	●	–	●	–	–	–
Video evaluation	–	–	–	●	–	●	●	●
Zoom and light control	–	–	–	●	–	●	●	●
Autofocus	–	–	–	–	–	●	●	●
Touch probe	–	●	–	●	–	–	●	TP200
3D-Profiling	–	Optional	–	Optional	–	–	Optional	Optional
CNC function	–	–	–	–	●	●	●	●

	IK 5000
Axes[1)]	3 (XYQ), 3 (XYZ) or 4 (XYZQ)
Encoder inputs*	∿ 1 V_{PP} or ⊓⊔ TTL (other interfaces upon request)
Subdivision factor	Up to 100-fold, selectable via dip switch; default setting: 50-fold (only for 1 V_{PP})
Display step[2)]	Adjustable, max. 7 digits *Linear axes XYZ:* 1 mm to 0.0001 mm *Angular axis Q:* 1° to 0.0001° (00° 00' 01")
Display	Via PC screen
Functions	• Measurement of two-dimensional features (2-D) • Measurement of three-dimensional features (3-D)[1)] • Point measurement with crosshairs • Programming of features and parts • Measure Magic: automatic recognition of geometries • Graphic display of measurement results • Entry of tolerances
Edge detector[1)]	• Automatic point measurement via optical edge detector
Video[1)]	• Automatic point measurement via video edge detection • Manual autofocus • Show live images • Archiving and output of live images • Zoom and light control, programmable (with the *Light/Zoom* versions) • Video connection for digital USB camera (with the *Video* versions) • Light control over six light sources and zoom control (with the *Video* and *Light/Zoom* versions)
CNC[1)]	• Automation of measurement tasks • Axis control (for XYZQ) for servo and stepper motors • Autofocus via stepper-motor control (Z axis) • CNC outputs and inputs for joystick
3D-Profiling[1)] (option)	• Importing of CAD models • Probing of tested object and comparison with the CAD model • Flexible output of measurement results
Error compensation	• Linear, and segmented linear over any number of points • Squareness calibration • Matrix compensation over any number of points
Other connections	• Foot switch for two functions
Accessories	Foot switch, fiber-optic cables, holder for fiber-optic cables, servo amplifier, calibration standard, demo part, distribution cable
PC interface	PCI
Dimensions	100 mm x 250 mm

***** Please select when ordering
[1)] See the configuration table for possible combinations
[2)] Depends on the signal period of the connected encoder as well as the subdivision factor

IK 5000 QUADRA-CHEK
– Functions

The innovative operator guidance provides self-explanatory information about the various functions. It already supports you while setting up the coordinate system (aligning the part and specifying the datum).

Various predefined features are available for measurement, depending on the version:
2-D measurement: Point, line, circle, slot, rectangle
3-D measurement: Plane, cylinder, cone, sphere
The "Measure Magic" function makes measurement especially easy: it selects that feature which best matches the shape implied by the points probed.

With IK 5000 QUADRA-CHEK you can define features yourself (for example, a circle whose position and dimensions are exactly specified). In addition, you can establish relationships (distances, angles) between features.

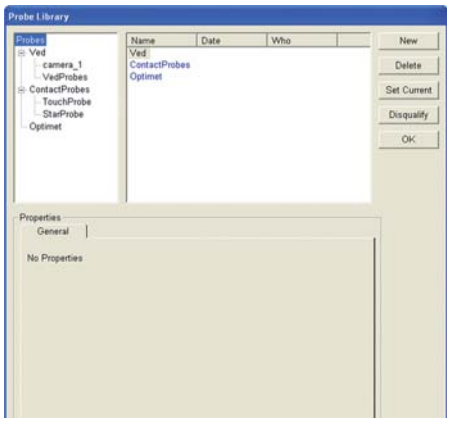
Measuring programs that you create yourself or record automatically simplify the efforts necessary for repeated parts. The digital readout graphically takes you to the next measuring position during program run.

Depending on the version, IK 5000 QUADRA-CHEK probes the measuring points of plane (2-D) contours either automatically or manually via crosshairs, via optical edge detection, or via a video camera.

For 3-D contours, such as planes, cylinders, cones and spheres, the measuring points are probed with a touch probe. If a triggering touch probe is used the values are transferred automatically. With rigid probing elements a key must be pressed.

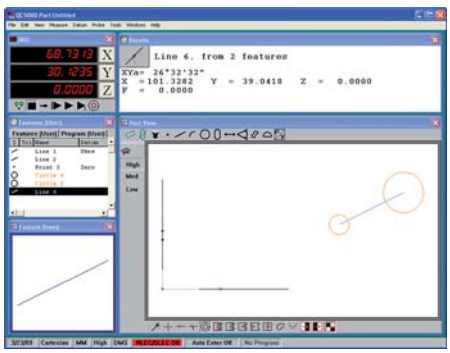
The measured features can be clearly displayed either in three dimensions or in one of the three projection planes.

Multi-sensor scanning
Along with the usual method for measuring points, the IK 5494 and IK 5594 versions permit multi-sensor scanning: in addition to the video camera, the measuring machine is also equipped with a touch probe. You can then use the touch probe to measure 3-D features on the object, and enjoy the advantages of video evaluation for 2-D features. The integrated probe library manages the various measurement tools for you, whether they be optical, video, laser or touch-probe systems.

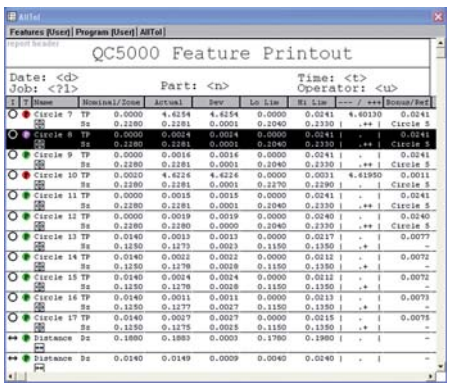


Constructed features
QUADRA-CHEK gives you several possibilities for determining dimensions:
- Measuring the features
- Calculating the features (e.g. the center point of a measured circle)
- Establishing a relationship between features (e.g. distance between two circle center points, angle between two lines)

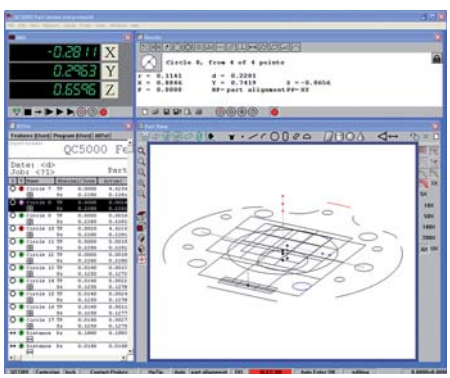
However, you can also construct new features from existing features and from relationships. The properties of these constructed features can then be seen directly in the parts view.



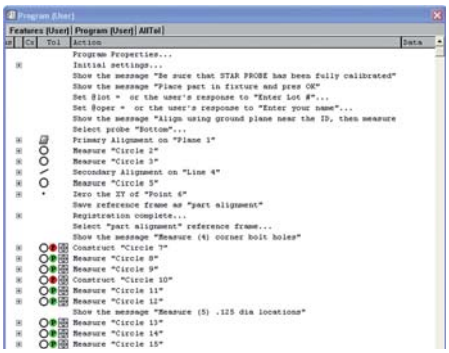
Data management
The integrated data-report generator for customized forms, databases and tolerance checks is used to archive, export and import data in numerous formats. Use the integrated spreadsheets for complex and non-standard calculations.
Simply send your customized reports to a printer, or make the data available to other users in a database.



Functional Part View window
QUADRA-CHEK provides you with a comprehensive, graphical Part View window. You can choose between a 3-D view, or a projection in the XY, YZ or ZX planes. Additionally, you can magnify, reduce, zoom, shift or rotate the views. You can define tolerances and constructed features in any view. The "pass/fail" color coding makes it easy to determine whether the part matches the specifications.

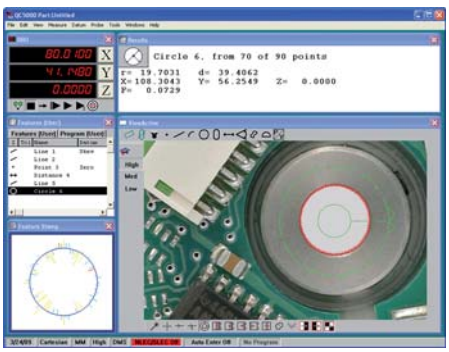


Programming of parts
Difficult and repetitive measuring tasks can be simplified with the aid of a program that you either create yourself or record automatically during measurement of the first part. QUADRA-CHEK learns the reference points, the sequence of measurements, tolerances and data-output commands. QUADRA-CHEK visually leads you to the features to be probed when the program is run. The program view also provides you with an optimum overview of the process.



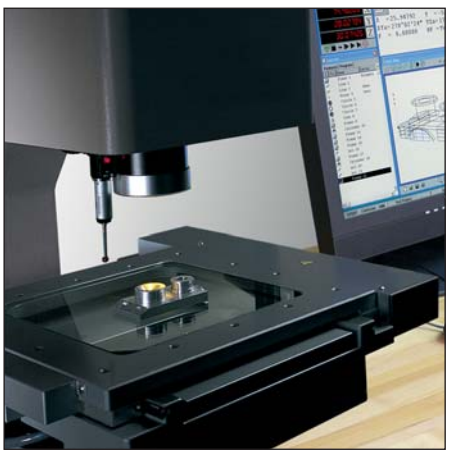
Integrated image processing
The integrated image processing function included with the video-function versions provides a special benefit: the video image is shown on the screen in real time and can be saved. QUADRA-CHEK can even assume complete control of the illumination and the motor zoom. A digital USB camera can be connected.

In order to quickly and directly compare the actual status and nominal status, import the parts drawing in DXF or IGES format, and place it over the video image.

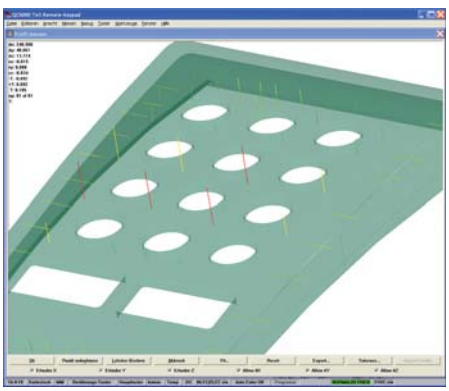


Axis positioning
The CNC versions of IK 5000 QUADRA-CHEK work as full-fledged controls, directly controlling the positioning of the X, Y, Z and Q axes. Servo motors or stepper motors can be connected. The necessary servo amplifiers for two or three axes are available as accessories.

Automating
Programs running in combination with the CNC function of IK 5000 QUADRA-CHEK run automatically. This minimizes the effects of subjective assessments, and increases data throughput noticeably. By automating series of measurements and complex procedures, you spare yourself the strain of performing repetitive measuring tasks.

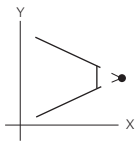


3D-Profiling
The 3D-Profiling option simplifies the measurement and evaluation of 3-D contours on multi-sensor and tactile measuring machines: First you import the CAD model, then you measure the real part, and finally you use the 3D-Profiling function to compare the measured points with the CAD model. The measurement results are displayed graphically and can be managed in the usual manner. They can also be transferred to other quality systems.

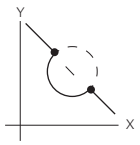


Excerpt from the possibilities for the construction of features:

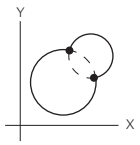
2-D possibilities



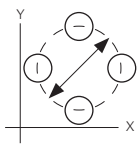
Intersection of two lines



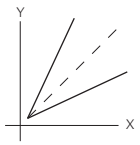
Intersection of line and circle



Intersection of two circles

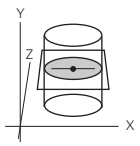


Bolt hole circle formed from three or more circles

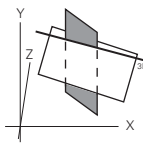


Bisector of two lines

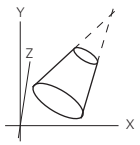
3-D possibilities



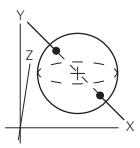
Intersection of cylinder and surface



Plane from plane and 3-D line



Taper angle



Intersection of sphere and line

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