The CHECK-MASTER II is an advanced measuring instrument for automatic measurement of all types of cells. Its main application is in situations where the highest accuracy and the ease of use are of great importance. Many additional accessories allow it to be used for final checking and goods inwards checking of rotogravure cylinders.

Unlike Dot-Check, the measurements are taken automatically. False measurements due to incorrect operation are hereby excluded.

The basis of this new measuring system is the world-wide known Check-Master microscope, which has been substantially modified and equipped with a digital camera having a high-performance image processor running under Windows 7 and a high-resolution monitor.

The user surface can be individually modified to ensure optimum ease of use for every application. Due to help facilities operating of the CHECK-MASTER II has still become more easy and comfortable in addition to the already existing possibilities offered by Dot Check and CHECK-MASTER. The illumination of the microscope is adjusted fully automatically and operation is as usual, extremely simple. Only a PC mouse and keyboard are used to operate the instrument.

The use of a PC with Intel or AMD processor allows many other features to be provided such as storage of images and readings, connection of a laser or inkjet-printer, links to other programs and networking with other PC’s.

CHECK-MASTER II offers:
• Correct and quick automatic measurement of the longitudinal and transverse diagonals and channel in one operation.
• Precise automatic determination of the screen including longitudinal and lateral repeat (feed) and angle output.
• In addition, the cells can be measured manually by using the mouse.
• Exact output of the surface of a cell in µm².
• Accurate optical depth measurement (motor-driven: automatic or manual) with IFC and trend bar.
• Determination of the volume for electromechanical engraving in m³/m².
• Adjustment of the measuring position by 15 mm in longitudinal and transverse directions.
• Several optical magnification/measuring ranges so that both coarse and fine screen sizes can be accurately measured.
• Selection of individual or multiple measurements.
• Possibility of digital switching to 2 x and 4 x image magnification, all measurement functions remaining active.
• Considerable simplification of the series measurement of up to 24 ribbons each with up to 15 tones in one operation.
• Automatic change of measuring range with on-screen display of selected objective.
• Measurement can be made in live mode or from stored images.
• Measurement results and images can be stored on the hard disk or CD-ROM.
• Interfaces for data communication and various types of printers.
• Program for calculation of screen rollers after entry of the known data.
• Entry of cylinder characteristic data.

Options:
• Colour camera
• Touch-screen monitor
• Software for measurement of mechanical engraved cells.
• Calibration plate
• Connection to Excel
• Laptop (instead of PC)
Description:

CHECK-MASTER II is a combination of an image processing system and a high precision video microscope. Operation is made via mouse and AT keyboard. The Check-Master program is Windows 7 compatible. The design of the microscope ensures parfocality (i.e. the image remains sharp while the objective is being changed) and a motordriven coarse and fine adjustment of focusing simplifies operation considerably. The 1/2\" high-resolution digital camera magnifies the image from the objective and illumination unit to 20 times its original size. The digital 32bit-signal is fed to the computer via a flexible cable. Illumination is made by an LED lamp with long service life. Over-exposure of the image is not possible because the lighting level is automatically adapted to the reflection. This ensures that the signal to the converter is always at its maximum level. The digital signal is analysed pixel by pixel using an image processing system and is processed several times according to contrast and brightness. Dark areas are identified and the geometry and position in the image are checked. Adjustable filters largely eliminate scratches and dust. The sum of all the pixels that are covered by a cell represents the surface. The length and width of the cell are determined and put out as longitudinal and transverse diagonals. The measured cells are automatically highlighted in red on the monitor for visual checking. The screen size is determined by the position of the cell in relation to the neighbouring cell. The depth is determined by focusing on the surface (zero point) and then focusing on the bottom of the cell. IFC and a trend bar support the depth measurement. When carrying out an automatic “cylinder measurement” (from one tone to several tones in several ribbons), all the measured values and images are stored. These can be kept for future checking and repeat measurement of surfaces and diagonals.

Technical Data (subject to technical modifications)

CHECK-MASTER II System:

a) High-performance image processing computer with a Intel or AMD processor.
- CD-ROM and USB-ports
- 80 GB hard disk with storage capacity for up to 1000 images
- frame grabber Impact VCB
- Windows 7 Pro operating system
- connections to laser jet and ink jet printer on LPT or USB
b) High-resolution digital camera (sensor 1/2\", 816 x 606 pixel, b/w)
c) High-resolution 17\" TFT colour monitor
d) Precision microscope with low centre of gravity and anti-slip foot. With carrying handle, objective revolver and high-resolution objectives with 5, 10, 20 and 40 fold magnification. Simplified motor controlled focusing. The image field is at one level for all objectives.
- Achromatic objectives for maximum contrast and excellent separation.
- Illumination by computer-controlled light source (long life LED).
- Motor controlled focusing operation.
- Mount for 5 objectives
- Automatic change of measuring area
- Mechanical longitudinal and transverse adjustment up to 15 mm
- Cylinder circumference from 100 mm up to 2500 mm and plane
- Cable length to computer up to 5 metres
e) Simple operation with supplied 3-button mouse or windows keyboard
f) Print-out in pdf-format
g) Connection to network possible

CHECK-MASTER II Software:

- Multiple automatic and manual measurement of engraved, etched and lasered cells.
- Longitudinal and transverse diagonal and canal.
- Screen size and repeat (longitudinal and transverse feed), screen angle.
- Depth using IFC and trend bar.
- Determination of volume in ml/m².
- Automatic storage of up to 1000 images in 24 ribbons.
- Settings for series measurement with or without ribbon division.
- Automatic printing of data or image and data.
- Storing of the measurements as pdf-protocol
- Program for calculation of screen rollers.
- Image magnification and displacement.
- Listing of the measurement results for all ribbons.
- Automatic change of measuring range with the selected objective displayed on screen.
- Adjustable filters for improved measuring of problem surfaces.
- Possibility of inversion of measurements to ensure trouble free measurement of coated surfaces.
- Automatic depth measurement