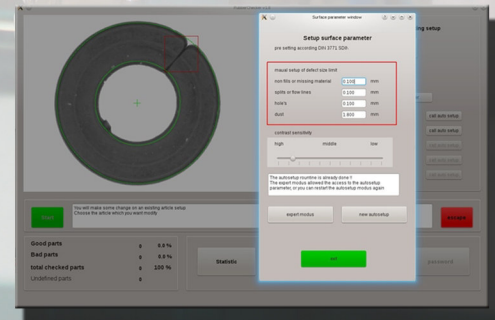
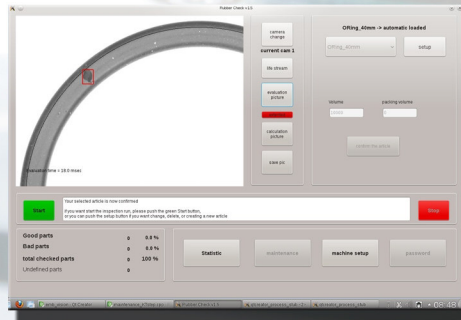


KTwave



EFP
Maschinenbau &
Elastomerrecycling
GmbH



KTvision Systems

www.eep-maschinenbau.de

KTwave

Product Information

Vision System for round seals with variable elongation

Details and advantages

This system comes up with the best in class inspection software and unique sensors for high quality and output for most of the rubber parts from 40 up to 200mm diameter.

Get impressed by the innovative, new to the world Auto Setup. Why defining illumination, positioning and testing severity when the system can do it much better with the experience of 25 years of image processing?

Testing with variable elongation, the very unique mechanical solution allows an elongation of the parts before testing.

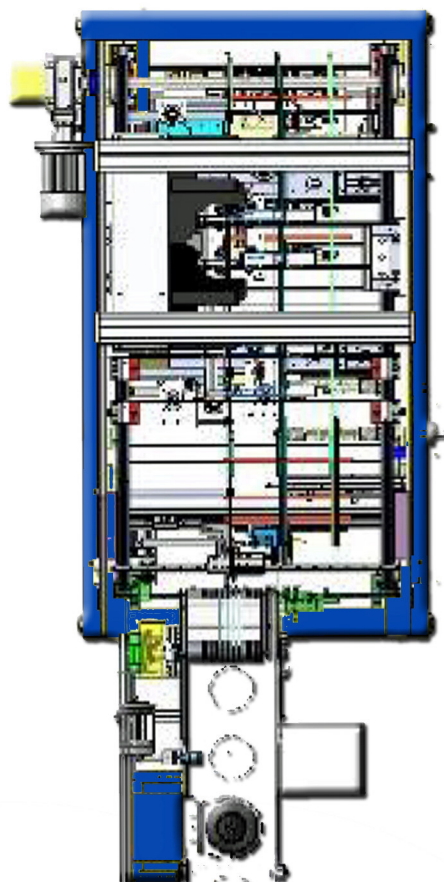
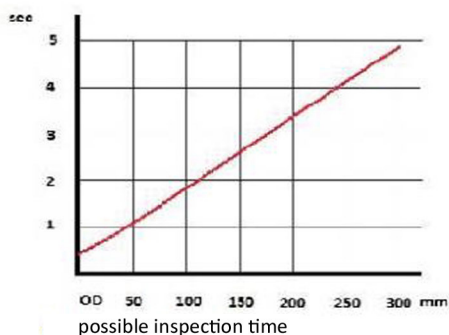
The inspection of the surface itself takes place in stretched condition. This enables us to detect even small cracks and cuts maintaining high productivity.



Technical Data

Product features

- Testing area 40 to 200mm OD
- Cross section 1,5 to 5 mm
- testing under stretched conditions
- variable elongation (crack detection)
- HMI with Touchscreen
- Auto Setup
- Pattern recognition
- simple choice of severity



field of view (*)	10 mm
Pixel resolution [mm]	0,01
Min. defect size [mm]	0,1

(*) Values with the built-in 1 Megapixel camera for safe defects recognition with sufficient contrast (20-30 grey values) and depth of defect of 0,08mm.

The Performance of the system must be tested and confirmed in each single case with master samples.

Basis model

Double sensor unit with conveyor belt

2 x KT Sensor

Surface defects inspection with 4 x 1 Megapixel camera

Complete view over the circumference of the cross section, part size up to max.

200mm outer diameter

Integrated LED flash for optimum illumination and contrast

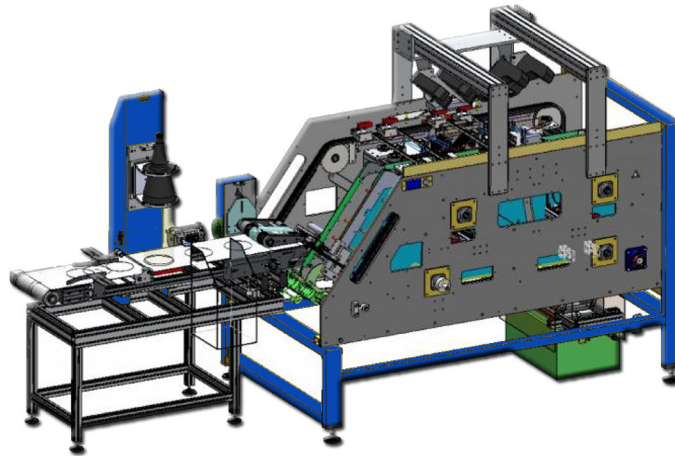
Option KT Measurement Sensor

5 Megapixel camera and telecentric objective

Measurement: outside-/inside diameter, cross-section

Monitoring +/- 0,1mm, GR&R for tolerances from +/- 0,5mm (OD 100mm)

Monitoring +/- 0,15mm, GR&R for tolerances from +/- 1mm (OD 150mm)



KT Software - Ktvision

The KT Software is especially designed for rubber seals, but also useable for other materials. Rubber is called a living material and the surface condition of rubber seals has a wide variety of different looking. Therefore the rubber surface examination needs a special algorithm.

The KT software consists of all necessary tools for a vision inspection machine. Features are:

- modern designed GUI
- a special feature is the active user guidance
- facilitation for the user: auto-setup modus for usual seals like o, v, or q-ring, break seals, frame seals and so on
- expert setup modus for complex seals and for general optimization after auto-setup
- pattern recognition: the software recognizes the general type of defect
- all size limits displayed and prompt in mm or inch
- informative statistic
- machine operation (PLC)

For more informative details, please see our brochure „Ktsoftware“

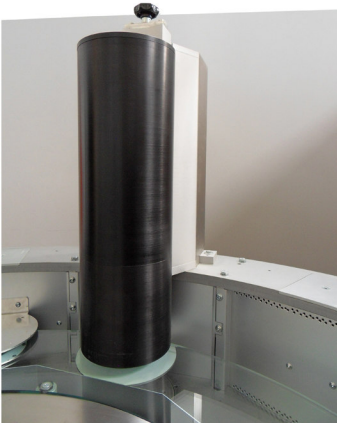
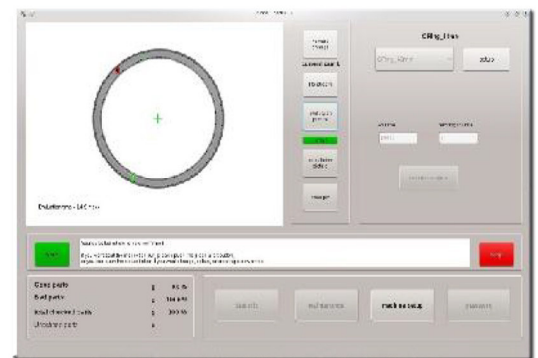
short info KTwave



KT Vision Systems aim to be as simple as possible needed with a modular design. This allows the user to concentrate on the product quality and to inspect small lots without efforts as well.

KT Vision Systems are unique in the picture analysis through consequent use of innovative sensor technologies. Combined with the very special software, this delivers highest quality and efficiency in the vision inspection.

KT Software, intelligent and easy to use! With KT auto-setup, the vision system applies a self-test on the master samples or even the first teach in parts. Generally, the operator sets only the severity and the minimum error limit. Lighting, flash, the test zones and the remaining parameters for the surface analysis are automatically determined and set optimally. The KT auto-setup works for standardized components and defects. For non-standard parts / seals, the expert mode is suitable to create your own receipts.

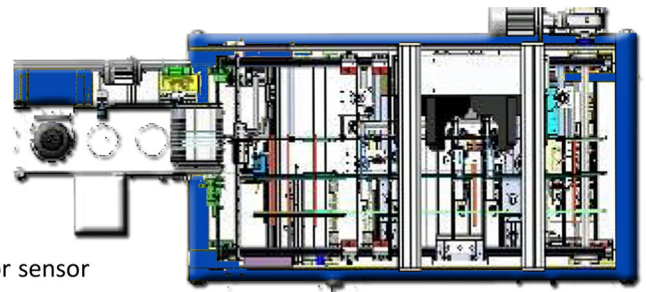


KT Sensors, the eyes of the inspection machine

Innovations in detail and highest optical precision generate detailed pictures of the parts. Multi-level lighting systems offer the highest possible contrast and thus a safe and reproducible surface analysis. All sensors are equipped with their own computing power and work autonomously. Only the instructions exchange via a network to the control computer. The pattern recognition collaborates together with an expert system generating the final decision if the detect area does not represent a defect or if the part has to be blown out as scrap. This very intelligent decision procedure reduces significantly the so-called pseudo scrap and makes the test system more efficient than most other systems on the market.

KT optimized mechanics

A stable engineering for optimized flow of parts form the backbone for sensor and actuator systems. Easy access allows rapid conversion to other parts and quick cleaning. The modular design allows for easy configuration and upgrades.





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