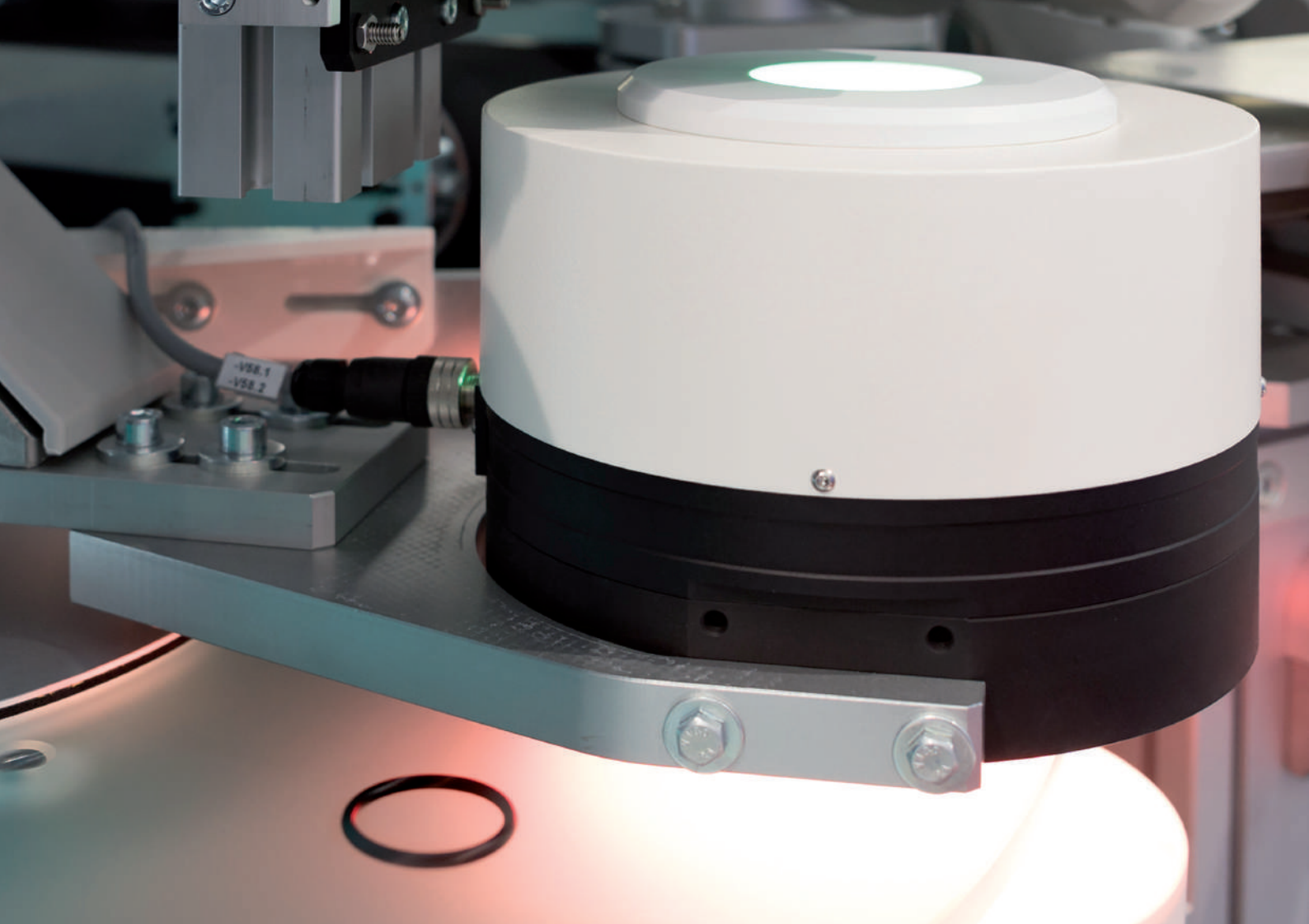




ScrappiX

AUTOMATIC VISUAL INSPECTION MACHINE
WITH DOUBLE TABLE FOR O-RING
AND GENERIC PIECES

UTP VISION
VISUAL INSPECTION





LINUX



DATABASE
INTEGRATION



STATISTICS
REPORTS



COLOR VISION
PATENTED



ARTIFICIAL
INTELLIGENCE

ScrappiX is an innovative visual inspection machine for the dimensional and surface control of components of various shapes. It is recommended for high precision control of rubber gaskets, plastic and other material parts up to \varnothing 90 mm. Each part is inspected for defects by a series of dedicated vision stations.

The acquired images are transferred without any data loss to a PC managed by a Real Time OS, which handles both image processing and the interaction with the operator through a user-friendly interface. The system's stability is guaranteed even at extremely high inspection speeds.

After the images have been processed, pieces are sorted into three different collection areas depending on whether they are compliant, non-compliant or reworkable. Part changeover is quick thanks to the possibility of saving inspection parameters in each recipe.

ILLUMINATION

- Digital regulation of bright intensity for inside and outside surfaces
- Possibility to control piece with reflecting surface
- Good precision of dimensional and surface controls
- No decadence of bright intensity

LASER THRUBEAM SENSOR

Laser thrubeam sensor is able to measure with extreme accuracy the planarity of the piece scanning its profile. It's possible to measure the height of pieces only if they are perfectly planar. The elevated precision of measuring is achieved using algorithms of elaboration of the signal that allow to eliminate any imperfection of the rotating table during its oscillation.



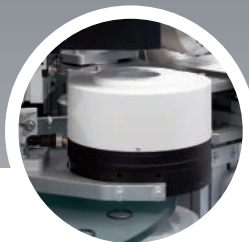
LOADING SYSTEM

①



DIMENSIONAL CAMERA

②



SURFACE CAMERAS

③



OUTPUTS

④



CONTROL DEVICE
OF EXTERNAL AND
INTERNAL SURFACES

OPTIONAL

DIMENSIONAL STATION

Independent measurement sensor for dimensional control of circular pieces, with the following characteristics:

- Progressive scan high resolution B/W camera
- Nearly zero distortion bi-telecentric lenses
- Dedicated lighting system

Related control program features

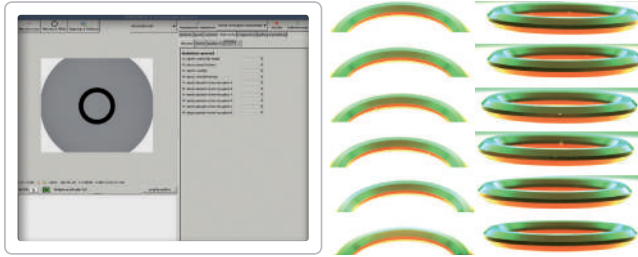
- Measurement of the inner/outer diameter
- Measurement of the radial cross section
- Measurements of general lengths, angles, radii
- Flash defects inspection
- Nicks defects inspection
- Roundness inspection
- Center distance

CONTROL SOFTWARE

The software for analysis and control of components with complex shape allows the recognition of planar rotation of piece. It also recognizes the top and bottom sides and independently processes the image of the piece regardless of load position.

Control program

- Irregular profiles identification and related control with reference to the sample profile
- Control of the maximum and minimum height of holes and flash on linear and curvilinear profiles
- Definition of multiple calipers and control of their dimensions
- Control of the median and punctual variation of cord sections
- Simultaneous analysis of surface defectiveness in many inspection areas

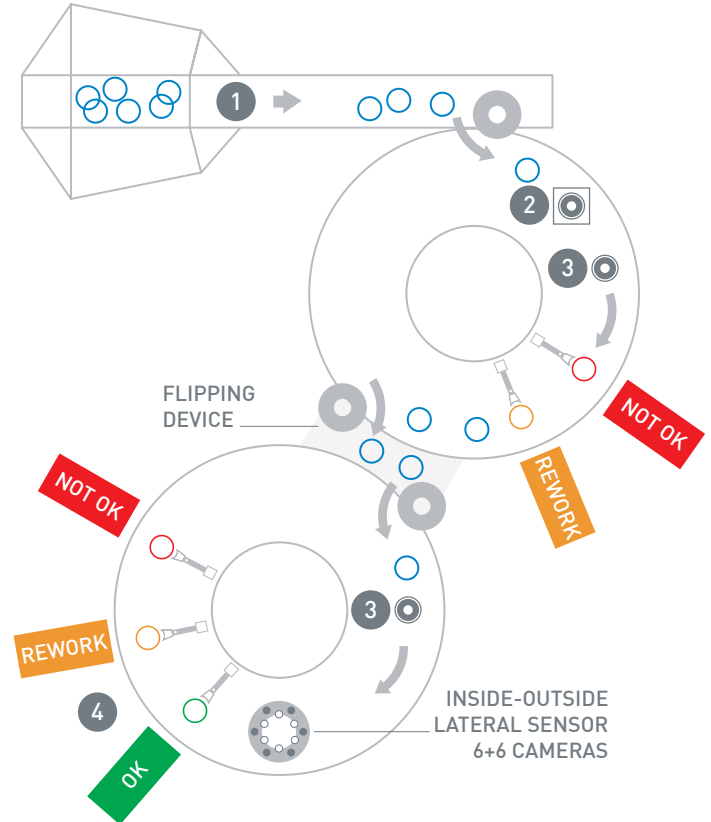


OPTIONAL CONTROL DEVICE OF EXTERNAL AND INTERNAL SURFACES

This system consists of two stations (internal side and external side) with each 6 progressive 2 Mpixel color scan cameras, with framing of the outside and inside of the piece every 60°. Each camera has a very low distortion lens. In addition, the system is characterized by 2 levels of colored LED lighting arranged above and below the piece.

The system allows to optimize the illumination of the piece thanks to the independent regulation of the illuminators with pulsed light.

The control program allows you to detect defects on the external and internal edge of a piece and anomalies related to the mold closure and production defects that frequently occur in that area.



SPECIFICATIONS

TECHNICAL SPECIFICATIONS	35	70	90
Material	rubber, plastic, PTFE, metal		
Color	any color		
Min. Outside Diameter (mm)	4	4	20
Max. Outside Diameter (mm)	35	70	90
Min. thickness (mm)	0.9	0.9	0.9
Max. thickness (mm)	9	9	9
Productivity	up to 10 pcs/s (36,000 pcs/h) depending on the typology and material of article		
Loading system	bulk feeder 300 L		

PLANARITY STATION	35	70	90
Measuring range (mm)	9	9	9
Dimensional resolution (mm)	0.001	0.001	0.001
Accuracy of measurement (mm)	±0.015	±0.015	±0.015
Repeatability ($\pm 2\sigma$) (mm)	±0.025	±0.025	±0.025

VERTICAL DIMENSIONAL STATION	35	70	90
Camera	B/W	B/W	B/W
Field of View (mm)	Ø54	Ø71	Ø102
Maximum height (mm)	5	5	5
O-Ring max. height (mm)	10	10	10
Dimensional resolution (mm)	0.001	0.001	0.001
Optical resolution (mm/px)	0.035	0.046	0.050
MPE Inside Diameter (mm)	9 μ m	10 μ m + 0.5 x 10 ⁻⁴ x IntDia μ m	12 μ m
MPE Outside Diameter (mm)	9 μ m	10 μ m + 1.5 x 10 ⁻⁴ x ExtDia μ m	12 μ m

SURFACE STATION ON BOTH TABLES	35	70	90
Camera	full color	full color	full color
Number of lenses	4	4	4
Focus adjustment	motorized	motorized	motorized

OPTIONALS

DIFFERENTIAL THICKNESS LASER STATION	35	70	90
Measuring range (mm)	25	25	25
Resolution (mm)	0.001	0.001	0.001
Accuracy of measurement (mm)	±0.003	±0.003	±0.003
Repeatability (±2σ) (mm)	±0.005	±0.005	±0.005
Minimum internal diameter (mm)	10	10	10

PLANARITY STATION	35	70	90
Measuring range (mm)	25	25	25
Dimensional resolution (mm)	0.001	0.001	0.001
Accuracy of measurement (mm)	±0.018	±0.018	±0.018
Repeatability (±2σ) (mm)	±0.030	±0.030	±0.030

INTERNAL LATERAL STATION ON BOTH TABLES	35	70	90
Cameras	full color	full color	full color
Width of field of view for each camera (mm)	25	44	58
Optical resolution (mm/px)	0.016	0.028	0.036
Minimum detectable defect size (mm)	0.050x0.050	0.085x0.085	0.110x0.110

EXTERNAL LATERAL STATION ON BOTH TABLES	35	70	90
Cameras	full color	full color	full color
Width of field of view for each camera (mm)	29	48	48
Optical resolution (mm/px)	0.018	0.030	0.030
Minimum detectable defect size (mm)	0.055x0.055	0.090x0.090	0.090x0.090

DEVICES
Bulk feeder 130 L
ABC (Automatic Blowing Checker)
DTC (Dirty Table Checker)
Heater on bulk feeder
Antistatic bars
Laminar flow cabinet
Manual cleaning machine control
Rotating warehouse
Packaging machine
Z conveyor belt

The technical data and images contained herein are indicative only. UTPVision reserves the right to modify its products at any time without prior notice.



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