see. control. automate.

NELA Inspection Systems

For Plastics, Elastomer & Silicone Technology

Dimensional inspection for surface defects on serial parts made of elastomer, plastic or silicone can be easily and reliably automated with NELA's optical inspection and sorting systems. Depending on the shape, size, material properties and inspection requirements, we offer a customised solution, for example for precision moulded parts, shaft seals, plugs and much more.
Inspection in accordance with DIN ISO 3601-3 is possible for O-rings.

Quality is Everything

Glass Table Systems

Highly precise 100%-inspection from all sides. Parts can be turned over by 180° during inspection.

Indexing Systems

With an individual handling of each part, ROVI provides a significant extension of optical inspection possibilities with tactile inspection, 360° rotation, or crack detection.

Belt Systems

LIVI for inspection of one or both sides of the part, with minimized touchpoints.

Inspection Parts

NELA inspection systems are suited for elastomer parts with varying sizes, geometries, and material properties.

Optical Inspection

Inspection of surfaces and parting lines as well as dimensions including shape and position tolerances at high throughput rates.

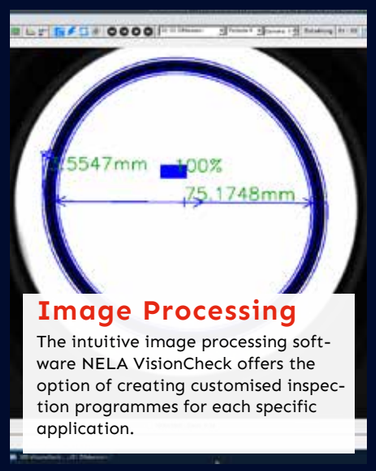


Image Processing

The intuitive image processing software NELA VisionCheck offers the option of creating customised inspection programmes for each specific application.

Feeder

Integration of fully automatic feeding units like bowl feeders, turntables, or handling systems tailored to individual applications. Bunkers available.

Handling Systems

Systems for customised inspection tasks that go beyond the module-based standard systems, e.g. robot handling for complex components.

Packaging

Gentle sorting of good parts via belt chutes into linear and rotary indexing batchers or bag packers. Integration with existing customer systems possible.

Automation with visual inspection systems

During automatic optical inspection, your products are checked for dimensional accuracy and surface irregularities or defects in a single pass. Depending on the application, glass disc and conveyor-based inspection platforms are available, if required also combined with robot handling or other special machine concepts.

In combination with the NELA VisionCheck image processing software, extremely powerful and efficient inspection cells are created for a reliable 100% inspection of your components.

Elastomers ◆ Plastics ◆ Silicones ◆ Composites

Materials:

- Elastomers
- Plastics
- Silicone materials

Defect types:

- Inside and outside diameter
- Cross-section diameter
- Mismatch, off-register
- Flash
- Indentations
- Flow lines, cracks
- Foreign materials

Benefits in your production process:

- Customized 100%-control of your serial parts
- High throughput of up to 600 parts per minute
- Careful, non-destructive handling of your parts
- Repeatable inspection results
- Documented quality
- Flexible and efficient system, steady and reliable
- Connection to PDA; Statistical Process Control, OPC-UA, Industry 4.0

Geometry control and Surface inspection methods

Parting Line - Making the Invisible Visible

The parting line on the inner and outer diameter plays an important role in the quality inspection of O-rings. This is where defects such as burrs, notches, indentations or rough surfaces often occur, which are caused by tool separation, damage to the tool edge or during deburring.

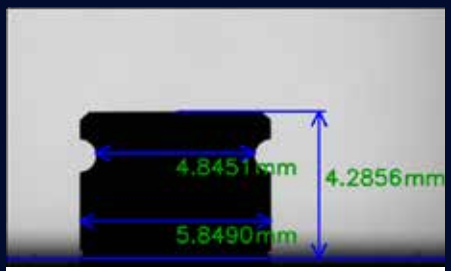
Homogeneous illumination is required in order to achieve maximum recognisability of defects in the area of the parting line.
With NELA's multi-level illumination, reflections on shiny surfaces are avoided as far as possible, resulting in a maximally homogeneously illuminated surface during imaging. Defects that would be practically invisible with conventional lighting become visible.

Surface Inspection

Inspection of all surfaces on the top/ bottom faces and lateral surfaces for previously defined defects. Different sensors with corresponding optics and lighting combinations are used to achieve the best possible contrast.

Dimensional Inspection

Inspection of all visible geometric features such as outer and inner diameter.



Height Control

Inspection of visible geometric features such as height, degree of deformation (elastomers) or protruding material.

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