



see. control. automate.

NELA Inspection Systems

For automated inspection and sorting of serial parts made of elastomer, plastics and silicone

The dimensional control and surface inspection of serial parts made of elastomer, plastics or silicone can easily and reliably be automated with optical inspection and sorting systems from NELA. We offer tailored solutions for products with different sizes, shapes and material characteristics, for example for molded articles, oil seals, stoppers, and many more. O-rings can be inspected in accordance with ISO 3601-3.

During the automated optical inspection, your products are checked for dimensional aspects as well as surface defects in the same cycle. Inspection requirements may include the following criteria, among others:

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

Depending on your product's characteristics and inspection requirements, we offer glass table or belt-driven inspection systems, also in combination with robot handling or other customized devices.

In connection with our powerful NELA VisionCheck image processing software, inspection systems from NELA provide a highly efficient and reliable solution for a 100% control of your valued products.



Your benefits in the production process:

- 100% inspection tailored to your needs
- High throughput - up to 600 parts per minute
- Careful, non-destructive part handling
- Repeatable inspection results
- Documented quality
- Flexible and efficient system, steady and reliable
- Connection with PDA, OPC-UA, Industry 4.0

NELA INSPECTION SYSTEMS

For fully automated optical measurement, surface inspection and sorting of serial parts made of elastomer, plastics & silicone



Range of parts

NELA inspection systems are suited for serial parts made of elastomer, plastics or silicone with varying sizes, geometries and material characteristics.



Optical inspection

High-speed inspection of surfaces and parting lines as well as dimensional control, including shape and position tolerances. With the intuitive image processing software NELA VisionCheck, individual inspection programs can be established for any application.



Packaging

Sorting of „good“ parts via channels or belts into linear or indexed commissioning systems, as well as bag packing units. Integration of existing equipment is possible.



Robot handling / customized systems

Customized systems for specific inspection tasks exceeding the capabilities of our modular standard systems. For example, robot systems for highly complex parts.

Glass table inspection systems

In TAVI.01, parts are placed on a rotating glass table for inspection. The parts' bottom side is inspected from below through the glass plate.

TAVI.02 is suited for a direct inspection of both part sides on two glass tables. The parts are flipped over by 180° during the inspection process.



Feeders

Integration of fully automatic feeding units like bowl feeders, turntables or handling systems tailored to individual applications. Bunkers for extended autonomous times are also available.



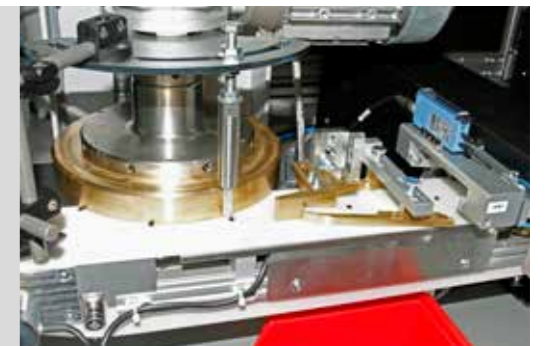
Indexed inspection systems

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-driven inspection systems

LIVI is NELA's belt-driven inspection system with a minimized number of touchpoints. For a direct inspection of top and bottom sides, parts can be flipped over by 180° during the inspection process.



Parting line - making the invisible visible

When it comes to the visual inspection of O-rings, the parting line on inside and outside diameter plays an important role. It is the area of the O-ring where many defects such as flash, indentation or roughened spots occur. Such defects are caused by production processes like mould separation, damaged moulds, or trimming and may cause faulty operation of an entire sub-assembly if they go undetected.

For a 100% inspection with minimal pseudo waste it is very important that the area around the parting line is perfectly illuminated to enable optical sensors to detect anomalies in the surface. O-rings, however, tend to have a very smooth surface which shines and reflects under direct light, making it difficult if not impossible to see defects in the relevant areas.

NELA has developed a new sensor specifically for O-ring applications which provides perfect illumination and, therefore, a highly improved detection of surface anomalies.

The new multi-level illumination prevents reflections to the greatest possible extent. It creates a homogeneously illuminated surface which is ideal for the detection of defects. Anomalies such as indentations, projections or non-fills are easy to find, invisible defects become visible.

O-rings can be inspected in accordance with industrial standards, including but not limited to ISO 3601-3.



O-ring with reflection



Image generated with new sensor

Advantages of an automated visual inspection

- ◆ 100% inspection of serial parts - tailored to your needs
- ◆ Steady and reliable - consistent performance
- ◆ High throughput
- ◆ Repeatable inspection results
- ◆ Documented quality
- ◆ Inspection in accordance with DIN ISO 3601-3 possible
- ◆ Modular design; adaptable for different applications
- ◆ Connection with PDA, OPC-UA, Industry 4.0
- ◆ Image processing software NELA VisionCheck

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