



Asentics MICRO

Unique Inspection Solution for Miniature Elastomer Seals

PRODUCT & PERFORMANCE

Asentics MICRO is the unique solution for high-precision automated visual inspection in aspects of surface and checking dimensions of miniature elastomer seals.

Design concept

The Asentics MICRO inspection system consists of two functional sections, the Separation Unit, which separates O-rings and seals with a 2 – 8 mm outer diameter; and the Inspection Unit, which is the core of the system, containing the sensors, software, hardware and electronic components. A Height Monitoring Unit is a standard feature of the Asentics MICRO, designed to monitor the parts planarity and to reject rings stuck together immediately prior to inspection.

The Topside Sensor inspects the upper and lower portion of a part for surface defects, the Dimension Sensor makes a high-precision measurement of the inside diameter, radial cross-section or outside diameter of the part. The Height Measurement Unit (HMU) is the first inspection device to check the O ring's planarity.

System Layout and Sensors

The Asentics MICRO is designed for the highest performance for very small parts. Depending on the size and material of the part, it is possible to carry out a surface and dimension inspection up to three parts per second using three 1.4-megapixel cameras.

The micro seals are fed into the system from a container of batch parts designated for inspection. A versatile rotating feeding unit conveys the parts into the inspection unit. The seals are finally positioned by a cascade of alignment bars and ionized-air nozzles, which align the parts precisely for visual inspection.

In addition, on the first conveyor, the height is controlled using our high-resolution HMU. The user interface is the Asentics MICRO system's control platform. It is the tool that operates the system, offering a variety of excellent functions. The Asentics MICRO user interface is based on the Windows® 10 operating system, but the software controlling the system functions is designed by Asentics. When running an inspection batch, the software allows the user to set and save all parameter settings for individual part types. For future inspection of the same kind of parts, a quick change-over is possible by retrieving the stored settings.

Specifications

Specifications	2.3 Megapixel Camera
Sensors - field of view 10 mm	
Sensors - Side A	
Topside sensor	●
Sensors - Side B	
Topside sensor	●
Dimension sensor	●
Height Measurement Unit - HMU	
HR-HMU sensor 10 µm	●
Hardware options	
Security equipment	
Access Control	○
Power Guard	○
Antistatic equipment	
Antistatic Kit I	●
Antistatic Kit II	○
I/O equipment	
Touchscreen monitor	●
Barcode Reader	○
Temperature sensor	○
Additional equipment	
Calibration Kit	○
Software Options	
Extended inspection areas	
Multiple AOI	●
Large AOI	●
Extension of product range	
Concentricity	●
Notches and Nubs	●
Area of Non-Interest	●
Orientation Recognition	●

● include · ○ optional · – not available

BENEFITS & ADAPTABILITY

Smallest parts suitable for inspection

Large quantities of small seals are commonly used in various applications, such as lighters, watches, fuel injection devices for cars, and routinely in medical systems. The trend towards miniaturization in technical product development is progressing rapidly. The manufacturing process for these products is rather difficult. For this reason, inspection is absolutely vital, even though, it is almost impossible to conduct a manual inspection effectively on account of problems with handling the small parts. Now, the Asentics MICRO provides you with a more than sufficient solution for automated visual inspection.

Highest inspection capabilities

The Topside Sensors inspect the upper and lower portion of a part for surface defects. The Dimension Sensor makes a high-precision measurement of the inside diameter, radial cross-section or outside diameter of the part. The sensor works with transmitted light and creates a silhouette image of the seals, detecting defects such as mixed parts, flashes, nicks, and breaks. The Height Monitoring Unit (HMU) is the first inspection device to check the seals planarity. Gaskets out of tolerance and those stuck together are sorted out by being blown off the belt.

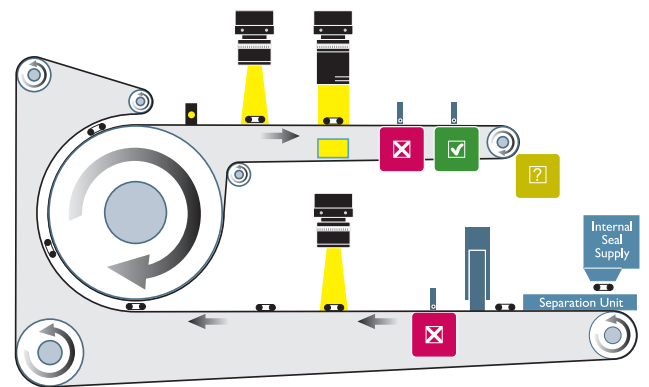
Due to problems with handling very small parts, it is almost impossible to do a manual inspection effectively. The Asentics MICRO is the automatic inspection system for the surface inspection of both sides of microscopic parts, as well as the precise measurement of the part's dimensions. In addition to the sophisticated inspection devices, the Asentics MICRO offers a unique mechanical concept for part handling, allowing "hands-free" operation.

Best possible part control through optimized antistatic equipment

Multiple ionized air-blowers are a standard feature on both the separation and the inspection unit. These devices discharge any static effects down to a minimum in order to achieve a very smooth and safe flow of parts.

Versatile feeding unit

Asentics MICRO is fitted with a specially designed versatile feeding unit. A slowly rotating disk transports the parts to a air supported guide bar. Several air-gates already separate double-sticking rings at this point. An additional guide positions the parts onto the first conveyor belt, leading the parts through the HMU into the inspection unit. All air blowers can be supported by antistatizationers. All static guides can be overhauled to provide sufficient feed of multiple engineered seals.



The right Asentics MICRO for you

The Asentics MICRO inspection system generally covers all requirements for inspecting miniature sealing applications. All Asentics MICRO models are based on the same high-performance mechanical principles. Asentics MICRO is available with 10mm field-of-view. When inspecting very specialized seals, you can make a number of adjustments to the mechanical system. Please ask our applications department.

Asentics MICRO - static sealing applications

Inspection of static and various industrial application seals

Upper and lower side surface inspection with two Topside Sensors

Inspection for dimensional and contour-related defects
with the dimension sensor

performance of up to 3 parts per second *

* depending on the size of the part and its material.

TECHNICAL DETAILS

System Specifications

System Specifications	
Processing and control unit	Sealing Inspector G4
Operation	Keyboard with touchpad
Operational safety	Safety switches and emergency-stop routines protect the operator
Functional safety	Automatic and self-test error routines ensure non-interruptible operation
Part dimensions	
Separation capacity max. OD	8 mm / 0.315"
Separation capacity min. OD	2 mm / 0.079"
Separation capacity min. CS	0.5 mm / 0.0197"
Separation capacity max height	3 mm / 0.1181"
Materials	
Types	All types of elastomers, metals with restrictions
Colors	All, transparents with restrictions
Throughput	
3 sensors	Up to 3 parts / second *

* depending on the size of the part and its material.

Weight

500 kg

Electrical connection

Supply voltage 230V – 1 phase

Frequency 50/60 Hz

Power consumption 2.0 kW

Fuse 10 A – slow blow

Pneumatics

Compressed-air dry and oil-free

Max. pressure 12 bar

Working pressure 6 bar

Air consumption 50 – 100 l / min.

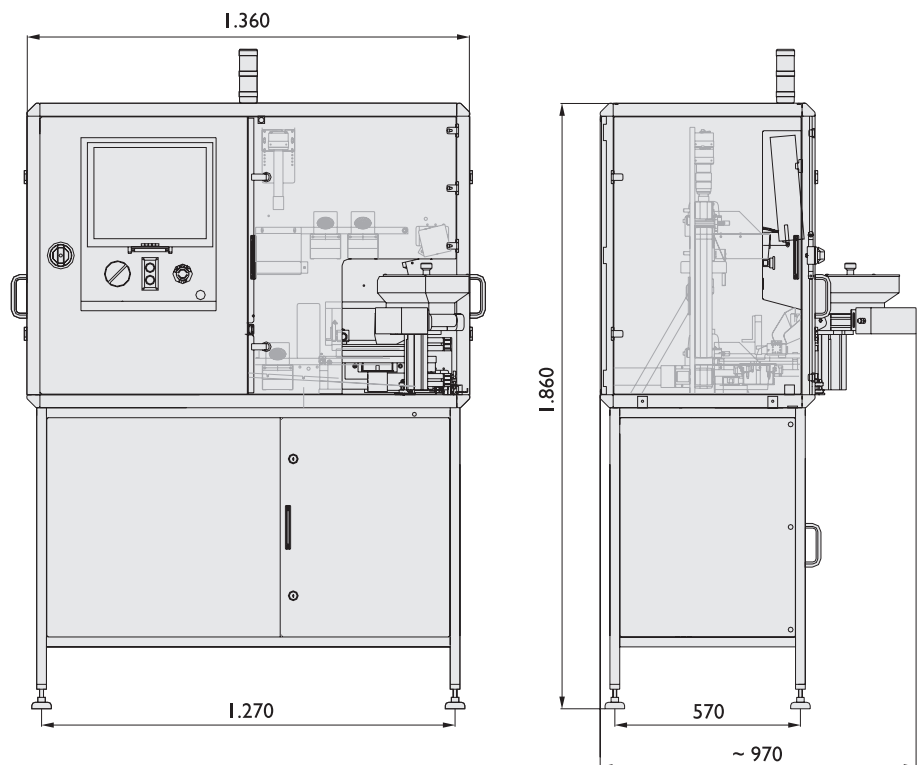
Noise level

Volume < 70 db (A)

Operating conditions

Temperature range 10 °C – 30 °C,

Non-condensing

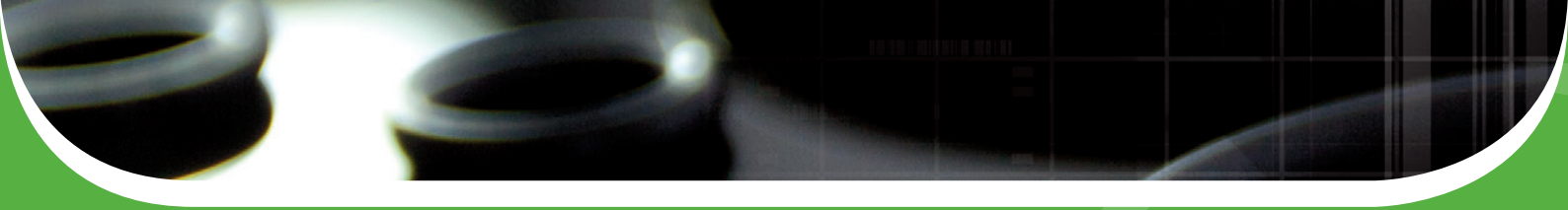


TECHNICAL DETAILS

Sensor Specifications

Camera		2.3 Megapixel
Field of view		10 mm / 0.3937"
Max. OD (dimensionally stable parts)		8 mm / 0.315"
Topside Sensor		
Resolution		0.085 mm / 0.00033"
Smallest detectable defect size		0,21mm / 0.00827"
Digital Industrial Camera		2.3 Megapixel
LED Illumination		red
Dimension Sensor		
Resolution (µm / inch)		0,085 mm / 0.0033"
Smallest detectable defect size		
- azimuthal		0,210 mm / 0.0083"
- radial		0,007 mm / 0.00027"
Measurement accuracy		0,004 mm / 0.00016"
Digital Industrial Camera		2.3 Megapixel
LED Illumination		infrared
Fan		no
HR-HMU Sensor		
Resolution		0,01 mm / 0.00039"
Sample rate / sec.		5000
Measurement accuracy		0,1 mm / 0.0039"
Illumination		Laser / red

The product in this document is subject to continuous development and improvement. We reserve the right to amend specifications without notice.



Asentics VARIO GmbH

Birlenbacher Straße 19–21
D-57078 Siegen (Germany)

Phone: +49 271/30391-110

Fax: +49 271/30391-119

E-Mail: info@asentics.de

www.a-vario.de