

Asentics vario²



The High-Performance Sealing Inspection System

The logo consists of the word "Asentics" in a black sans-serif font above the word "VARIO" in a large, bold, red sans-serif font. To the left of "Asentics" is a stylized graphic element composed of a grid of red and grey diamonds.

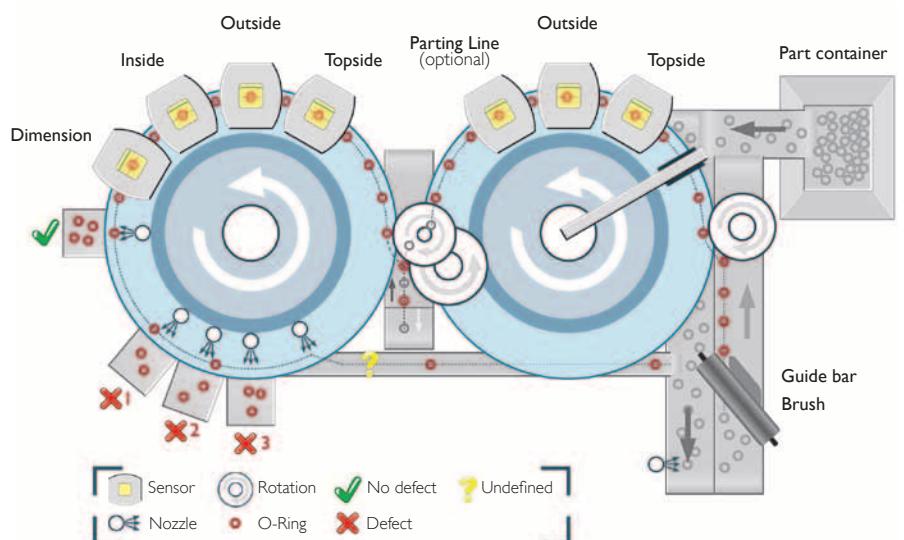
vario2 – Reliable Standards in Elastomer Inspection

The Asentics vario2 sets a new benchmark for high-precision fully automated inspection of many rotational symmetric seals.

Design/Ergonomic concept

The Asentics vario2 embodies a completely new ergonomic concept, designed for testing batches and equipped with an internal supply of parts and fully automated part separation. The testing system is viewed through two large sliding doors on the front of a system especially designed for access from three sides only, thus enabling you to position your Asentics vario2 against a wall.

In order to insure optimum ergonomic operation for the Asentics vario2 user, we opted for a monitor with a touchscreen on the operating panel, together with a second monitor that can be positioned inside the Asentics vario2 housing to suit your individual requirements. It is also possible to supply the entire inspection system housing with filtered air. Slight overpressure in the test system then reduces ingress of dust from the ambience.



System Layout and Sensors

The Asentics vario2 is designed for the highest performance at the highest resolution. Depending on the size and material of the part, it is possible to carry out a 360° check on up to nine parts per second using six 3-megapixel cameras.

Asentics uses a symmetrical inspection concept with two adjacent glass rings, with identical inspection environments for testing both surface sides A and B. In order to speed up initial part parameterization yet further, the Asentics vario2 features a standard part position function. In addition, on the first glass ring, the height is controlled using our HR-HMU with a sensor resolution of 10 µm.

The Topside Sensors on the Asentics vario2 are equipped with innovative software capabilities. The first Topside Sensor detects the orientation of profiled seals and transmits the information to the following sensors, which can then load the appropriate illumination settings and parameter sets. This considerably enhances performance, because the parts can be fed into the test system with any pre-defined orientation. Any physical-optical deformation of defects is corrected in the Topside Sensors. Defects in surface curvature are displayed deformed. However, the Topside Sensor software is so smart that it automatically corrects this physical deformation. The entire surface of the part is tested under consistent real conditions.

The Asentics vario2 is equipped with the latest generation of Outside Sensors, whereby the patented underlying principle has been improved upon yet again. The inspection area has been increased to 50 mm and the resolution consequently enhanced to 33 µm using a 3-megapixel camera.

An innovative Outside Parting-Line Sensor with a specially developed lighting module was designed exclusively for testing the parting line. It is therefore possible to test the reduced area of the mold parting with the utmost precision using a single sensor; an additional sensor slot is provided on side A.

Your benefits include:

- The vario2 comes complete with all software options included.
- High resolution of 33 µm to detect the smallest defect at reduced pseudo detection

Specifications

Specifications	3 megapixel camera
Sensors – field of view 50 mm	
Sensors – Side A	
Topside sensor	•
Outside sensor *	•
Outside Parting line sensor *	○
Inside sensor *	—
Sensors – Side B	
Topside sensor	•
Outside sensor *	•
Inside sensor *	•
Dimension sensor	•
Height Measurement Unit – HMU	
HMU Sensor 10 µm	○
Hardware options	
Security equipment	
Secu Set I	•
Access Control – 10 users	○
Laser light barrier for glass plate	○
Power Guard	○
Antistatic equipment	
Antistatic Kit I	○
Antistatic Kit II	○
I/O equipment	
Touchscreen monitor	•
Barcode Reader	○
Temperature sensor	•
Printer	○
Inspection Net	
Inspection Net / ESS	○
Additional equipment	
External feeding unit	○
Automated Bagging Unit AB180	○
Automated Bagging Unit AB255	○
Calibration Kit	•
HMU Double Ejection	○
Software Options	
Extended inspection areas	
Multiple AOI	•
Large AOI	•
Advanced Part Search	•
Extension of product range	
Concentricity	•
Notches and Nubs	•
Area of Non-Interest	•
Orientation Recognition	•
Extended system operation	
Parking Position	•
Remote Access	•
Access Control	•

* incl. Advanced Part Search software

• standard ○ optional

BENEFITS & ADAPTABILITY

Adapted to your needs – 360° Check

The Asentics vario2 was designed for the fastest standardized 360° check on surfaces and dimensions of rotation-symmetric seals. The concept of symmetrical testing is based on two high-quality glass rings with high-resolution 3-megapixel cameras, a combination that sets a new benchmark for testing safety-critical elastomer seals.

Cameras/Accuracy

The Asentics vario2 sets new benchmarks for inspection accuracy, with the standard version providing 6 sensors in a 50 mm field of view. All of the sensors are equipped with an Asentics 3-megapixel area scan camera, which, in spite of the larger field of view, provides a 25% increase in resolution to ~33 µm.

The use of high-resolution cameras requires the ultimate in computing power; so an Siemens Rack PC with Intel® Core 2 Duo in combination with the Windows XP® Professional operating system is now used to power the Asentics vario2.

SDS (Specific Defect Sorting)

The innovative rejection concept of the Asentics vario2 allows selection of individual defect samples and subsequent targeted conclusions to insure continuous process improvement.

Safe and efficient: Our vario2 Software

The Asentics vario2 is equipped with a comprehensive independent machine control unit with integrated runtime control routines that insure trouble-free operation at all times. A standard feature on the Asentics vario2 is a monitoring system for all illumination units in the sensors, controlled by internal system software and designed to detect low illumination power or failure.

The Asentics vario2 is also provided with extensive software routines to insure fill level control and correct count for immediate subsequent packaging. Of course it is possible to monitor current inspection results on the Asentics vario2 screen at any time without interrupting automatic operation.

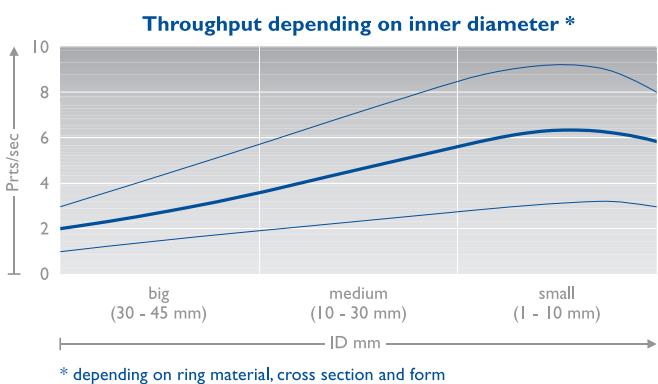
Process optimization/Statistics

The integrated statistics module in the Asentics vario2 records the individual results of inspection batches and summarizes them in statistics and a data history. This module calculates the critical process capability (cp and cpk factors) as well as the standard deviation of the entire test batch or only the "good" parts. The test results include data that enable you to subsequently improve your production process.

Apart from providing a structured breakdown of inspection results, the statistics module on the Asentics vario2 also provides detailed information on the distribution of defects. By individually selecting the defect criteria, you can implement targeted process improvement measures. All of the statistical data and a definable number of the individual data can also be exported as a csv file for further processing in other programs.

Speed

The Asentics vario 2 enables you to change the product rapidly and without any complications. All necessary product parameters are stored in a data record and can be accessed at any time. Product change is a fully automatic process and takes merely a few seconds – the operator is only required to clean carefully and clear the infeet. Thus, the Asentics vario2 insures the reproducibility of test results at all times.

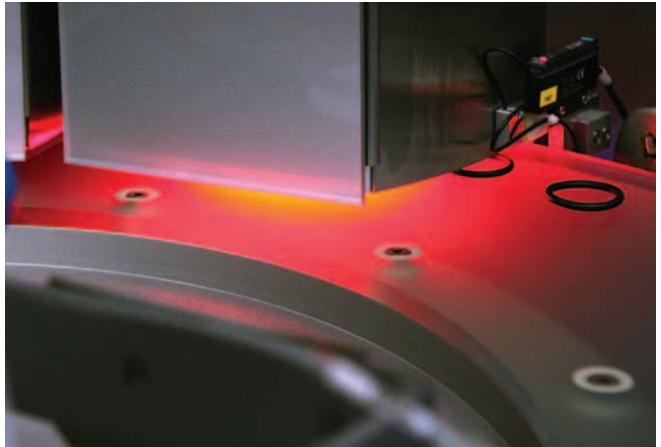


The throughput depends on a number of various factors. Typically, it lies between the upper and lower curves.

A significantly larger-volume part container insures increased Asentics vario2 uptime. We have defined the removal of "good" parts as an open interface, allowing you to integrate either the system's own eject bins with a volume of approx. 30 l or rollaway plastic bins with a volume of approx. 220 l. These rapid testing times are a key factor in test-system profitability for batch inspection.

Easy-to-use

A graphical user interface and data entry using a 17" touchscreen monitor make the Asentics vario2 very easy to use. A second monitor inside the machine enables you to oversee inspection from any position.



The right vario2 for you

Although the Asentics vario2 is available in a number of variations, three fundamentally different systems are listed here. These systems generally cover all requirements, from simple rubber seals to complex, high-quality molded components.

All Asentics vario2 systems are based on the same high-performance mechanical principle, and they only differ in respect of sensor equipment and associated image-processing software. Three typical applications are listed below:

Asentics vario2 static sealing applications	Asentics vario2 static or dynamic sealing applications	Asentics vario2 dynamic sealing applications
Inspection of static and differing industrial application seals	Inspection of Seals with additional high demands at the parting line area	Inspection of safety-critical seals for dynamic applications These sealing elements must have virtually no surface defects and require a 360° check
Upper and lower side surface inspection with two Topside Sensors		
	Inspection of dedicated mold parting line area with one Outside Parting Line Sensor	Inspection of complete outside surface with two Outside Sensors
Inspection of complete inside surface with one Inside Sensor		
Inspection for dimensional and contour-related defects with the Dimension Sensor		

All systems can be equipped with a high-resolution HR-HMU, which provides high-precision measurement of planarity and height of parts on the glass ring

TECHNICAL DETAILS

System Specifications

System Specifications	
Operating system	Windows XP® Professional
Operation	keyboard with trackball or touchscreen monitor
Operational safety	Safety switches and emergency-stop routines protect the operator
Functional safety	Automatic and self-test error routines insure non-interruptible operation
Part dimensions	
Inspection capacity max. OD	46 mm / 1.77"
Separation capacity min. OD	5 mm / 0.1969"
Separation capacity min. CS	0.8 mm / 0.031"
Separation capacity max height	9 mm / 0.3543"
Materials	
Types	All types of elastomers, metals with restrictions
Colors	All, transparents with restrictions

Weight

1385 kg

Electrical connection

Supply voltage 400 V – 3 phase
 Frequency 50/60 Hz
 Power consumption 2.5 kW
 Fuse 16 A – slow blow

Pneumatics

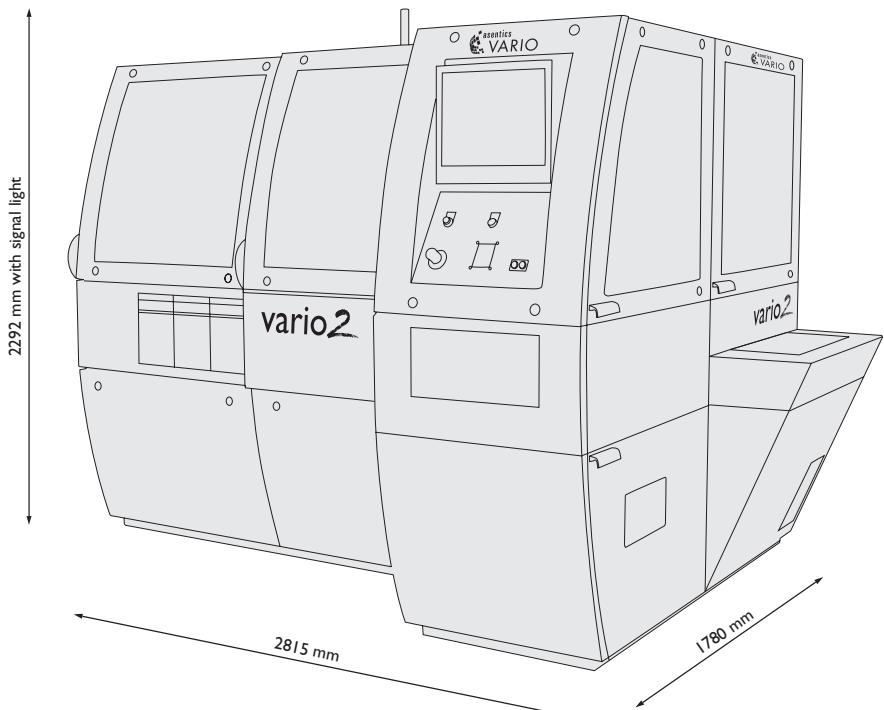
Compressed-air dry and oil-free
 Max. pressure 12 bar
 Working pressure 6 bar
 Air consumption 100 – 150 l/min

Noise level

Volume < 70 db (A)

Operating conditions

Temperature range 10 °C – 30 °C,
 Non-condensing



Sensor Specifications

Camera		3 Megapixel
Field of view (mm / inch)		50 / 1.969"
Max. OD dimensionally stable parts (mm / inch)		46 / 1.77"
Topside Sensor		
Resolution ($\mu\text{m} / \text{inch}$)		31 / 0.0012"
Smallest detectable defect size ($\mu\text{m} / \text{inch}$)		75 / 0.003"
Digital Industrial Camera		3 Megapixels
LED Illumination		red / white
Fan		no
Outside Sensor/Parting Line Sensor		
Resolution ($\mu\text{m} / \text{inch}$)		33 / 0.0013"
Smallest detectable defect size ($\mu\text{m} / \text{inch}$)		83 / 0.0033"
Max. OD (mm / inch)		46 / 1.77"
Digital Industrial Camera		3 Megapixels
LED Illumination		red / white
Fan		yes
Inside Sensor		
Resolution ($\mu\text{m} / \text{inch}$)		33 / 0.0013"
Smallest detectable defect size ($\mu\text{m} / \text{inch}$)		83 / 0.0033"
Measurement requirements: CS(A) / OD		< 0.355
Digital Industrial Camera		3 Megapixels
LED Illumination		red / white
Fan		yes
Dimension		
Resolution ($\mu\text{m} / \text{inch}$)		31 / 0.0012"
Smallest detectable defect size azimuthal ($\mu\text{m} / \text{inch}$)		80 / 0.0031"
radial ($\mu\text{m} / \text{inch}$)		25 / 0.00098"
Measuring accuracy ($\mu\text{m} / \text{inch}$)		15 / 0.00059"
Digital Industrial Camera		3 Megapixels
LED Illumination		red
Fan		no
HR-HMU Sensor		
Resolution ($\mu\text{m} / \text{inch}$)		10 / 0.00039"
Sample rate / sec.		5000
Measurement accuracy ($\mu\text{m} / \text{inch}$)		100 / 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.



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