SESOTEC

Food Safety

METAL SEPARATION

LIQUISCAN

Detection and separation of metal impurities in liquid and paste products

Metal separation for filler applications

The LIQUISCAN VF was specially developed for use in pump lines with high hygienic requirements. It reliably detects and separates magnetic and non-magnetic metal contaminants from liquid or pasty products and offers very good detection sensitivities even for products with high product effects. Thanks to its short installation length and optional quick-release fasteners, the metal separator can be easily attached to vacuum fillers and pumps. Various separating units ensure maximum flexibility and easy integration into complex line control systems.

Powerful control units

Depending on your requirements, two different control units are available for the LIQUISCAN VF: the GENIUS ONE Control Unit with single or dual frequency technology for very good detection accuracy and the INTUITY Control Unit with multi-simultaneous frequency technology for highest detection performance, ideal for products with strong product effects.

Simple integration

Thanks to its short installation length and optional quick-release fasteners, the metal separator can be easily integrated into existing piping systems with or without a separator unit.
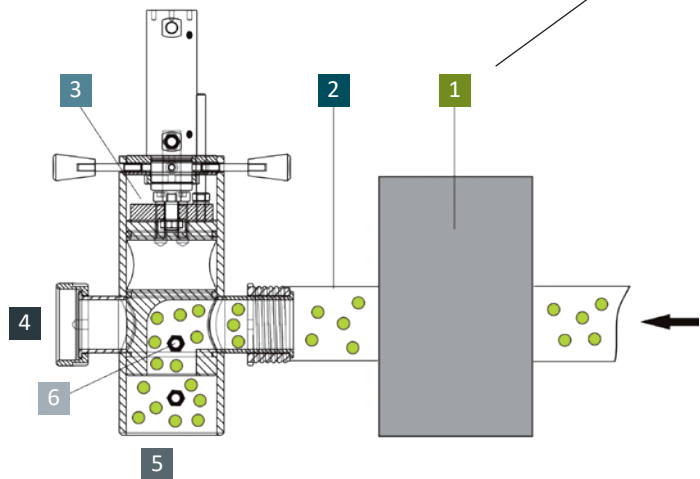
Stable structure

High stability against electrical interference due to a solid stainless steel design of the casing.

Durable design

A stable, height-adjustable stand with rubberized rollers, a lateral rotation option for the detection unit, and a display that can be operated at an optimum height ensure maximum adaptability.

Function

The turnout is shown in the bad runout position.

The LIQUISCAN VF is optionally available with three different separating units. Our diagram shows the operating principle when using a piston valve.

1 The integrated detection coil is characterized by optimum metal detection, high mechanical stability, and maximum interference immunity.

2 The thick-walled sensing tube is hygienically sealed and suitable for high pressures

3 Separating diverter

4 Good outlet

5 Bad outlet

6 Metal contamination

Separating units for different product consistencies

Various valves, optimally matched to the product properties, guarantee reliable rejection of metallic contaminants.

Piston valve
For pulpy, pasty products without large pieces

Ball valve
For products with larger pieces, e.g. muscle meat

Arc valve
For soup filling and aqueous products

High protection class

The closed system with high protection class (IP 66/69) allows easy cleaning:
- Etched safety instructions and nameplate
- optional holders for tools, test samples, and hoses

Highest
detection accuracy
also for products with strong product effects

IFS/HACCP
compliance
for maximum food safety detection accuracy
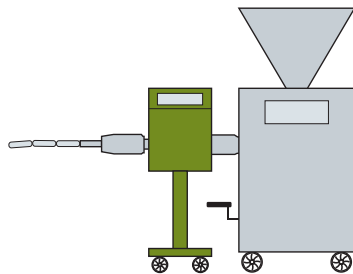
Maximum flexibility for diverse applications

Clipping

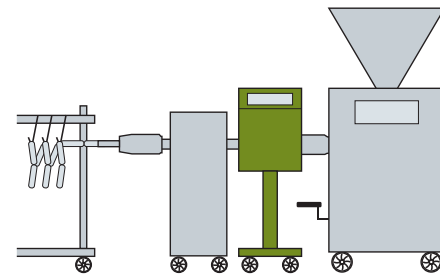Connection to a clipper is possible with or without a separator unit.
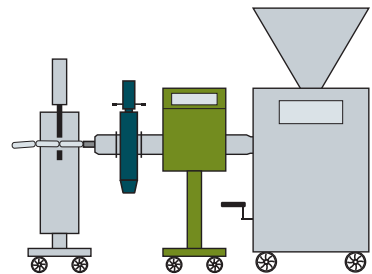
Calibration

Manual calibration is only possible without a separator unit, while automatic calibration is optionally possible with or without a separator unit.
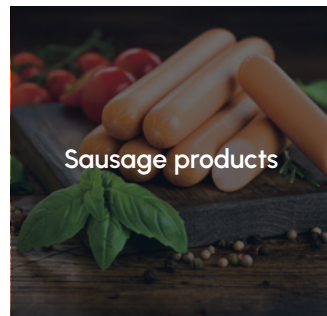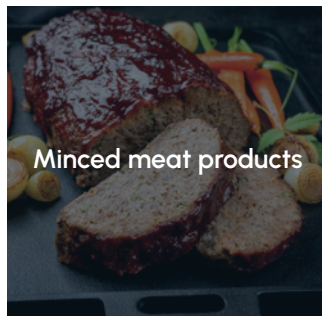
Hanging

Automatic twisting off and hanging is possible with or without a separating unit.
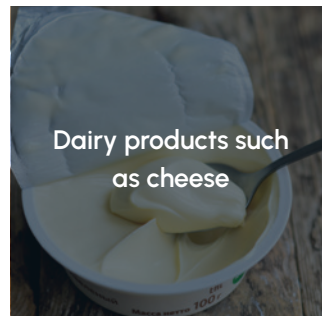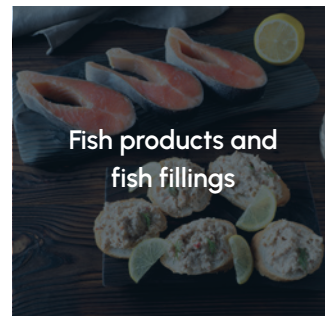
Typical fields of application
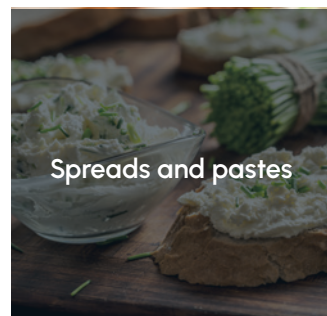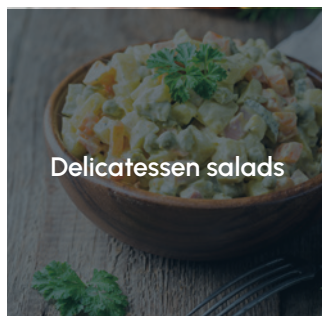
Sausage products

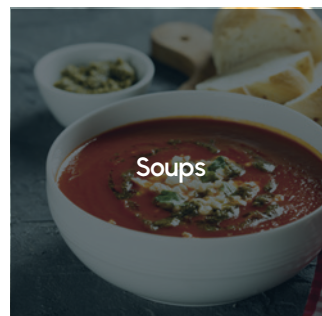Minced meat products

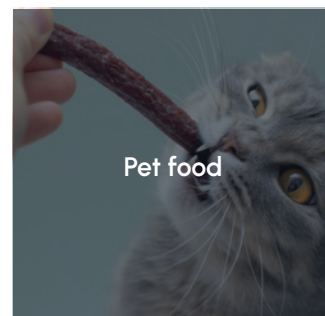Dairy products such as cheese

Fish products and fish fillings

Spreads and pastes

Delicatessen salads

Soups

Pet food

Your priorities. Our answers.

P1 Conformity & Accuracy

Very good detection sensitivities even with strong product effects due to single, dual or multi-simultaneous frequency technology, automatic product compensation, and digital signal processing

- Safe rejection in case of metal finds thanks to compressed air monitoring and ejection control (Reject Control System)
- Audit-Check: Runs through audit routines and logs all steps (quality monitoring)
- Optimal traceability due to complete logbook

P2 Safety for people & product

Safe discharge, easy traceability, high access protection, and data security deliver products without contamination to the consumer.

- The definition of different user groups with specific rights facilitates access protection
- Stable design with high stability thanks to the flexibility of the adjustable base
- Lockable container (optional)

P3 Simple operating concept

The 5"- or 7"-color touch display with intuitive menu navigation allows you to configure our systems easily and quickly for various applications. Operating errors are virtually impossible.

- Simple and intuitive auto-learn function
- Integrated product memory for up to 300 (500) products
- Quick access to important system functions through display on the start screen

P4 Comprehensive hygiene concept

A robust and hygienic casing allows easy cleaning and ensures safe water drainage through inclined planes.

- Built entirely from stainless steel and food contact approved plastics (EG1935/1935/2004)
- Materials can be cleaned repeatedly and intensively
- High protection class with optional display cover for wet cleaning (IP66/69)
- No dirty edges on the stand

P5 Efficiency in all areas

Adapted reject systems and high interference immunity prevent false findings and increase profitability.

- Different valves for liquid, pasty and lumpy products
- Various data interface enables direct communication with vacuum fillers and minimizes rejection quantity
- Easy attachment to vacuum fillers and pumps with optional quick-release fasteners

P6 Reliable, fast service

For a smooth operation, we support you with warranty services, on-site and remote service, and targeted training.

- Wear and spare parts package for the rapid continuation of production
- Remote service via Teamviewer app
- Customer-specific training for operation, service, and maintenance
- High overall plant efficiency and stable operation
- Min. 10 years warranty on spare parts availability

LIQUISCAN VF GO

Standard model with very good detection accuracy

For liquid and pasty products in filler applications

Free consultation
https://www.sesotec.com/emea/en/contact

2.0 mm	**IP 69**	**Single or Dual**
Detection*	Protection class	Frequency

Constant monitoring

A lamp with a tricolor signal indicator shows the current operating status of the device.

Hygienic structure

A cover over the operating unit protects the LIQUISCAN VF from contamination.
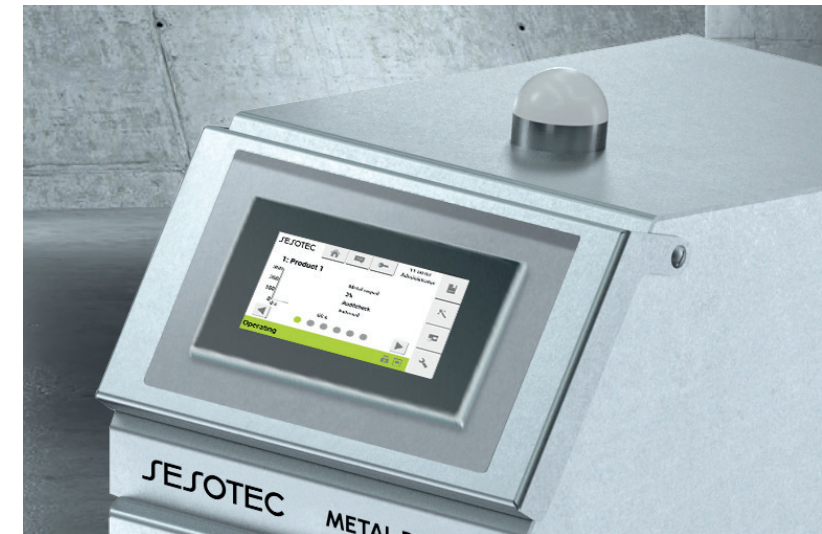
Rugged design

The solid stainless steel housing provides high stability against electrical interference. The unit is designed for short setup times with changing applications.

Optionally available

On request, a holder for an E2 box for the discharge material can be integrated into the stand. Optionally also with lockable lid.
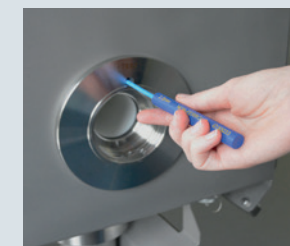
GENIUS ONE Control Unit

- New user interface with touch display for easiest operation
- Faster teach-in, fewer operating errors, and short operating times
- Cost and time savings through effective operating and service functions
- IoT-ready: USB port and integrated Ethernet interface for easy data transfer

Efficient audit check

For simplified functional testing, there is an opening on the unit for inserting flexsticks with ferrous, stainless steel, and nonferrous test samples.

Optionally available:
Inline test device for IFS-compliant testing in the product stream

Optional interfaces and protocols

- INTERLINK: Integration of devices into the company network via OPC UA , possibility of visualization via Insight.WEB
- COMGateway.Embedded: Integration of devices into the company network via OPC UA, SSTProt, MQTT or REST API
- PROFIBUS: Data exchange via bus system

NEW: optimized stand for maximum flexibility and high stability

- Stable oscillating axle to compensate for uneven floors or slopes
- Rubberized rollers for optimal rolling characteristics
- Easily adjustable both horizontally and vertically
- Can be slid under upstream and downstream devices of different manufacturers due to low overall height
- Detection unit is rotatable to the stand. This avoids collisions with other feet of the device
- Flexibility due to three-dimensionally adjustable chassis and short installation length

*Detection of stainless steel with product

LIQUISCAN VF IC

The premium model for best detection accuracy

1.5 mm
Detection*

IP 66/69
Protection class

Multi-simul-taneous
Frequency

For liquid and pasty products in filler applications

Free consultation

https://www.sesotec.com/emea/en/contact

Multi-simultaneous frequency technology

INTUITY uses a combination of two frequencies depending on the product characteristics and applies them simultaneously to the product under investigation. Each product leaves a "digital fingerprint" (product effect, blue point cloud). A metal trigger threshold (envelope) is calculated and stored around these points. All signals outside this threshold are automatically detected as metal. Signals within the threshold are assigned to the product effect. With the help of this technology, the product effect is compensated much better and thus a very high detection accuracy and a reduced risk of false ejections are achieved.

Signal visualization with a detection threshold

Envelope

- ● Product effect of the current product
- ● Product effect of past products
- ● Threshold exceeded (metal detected)
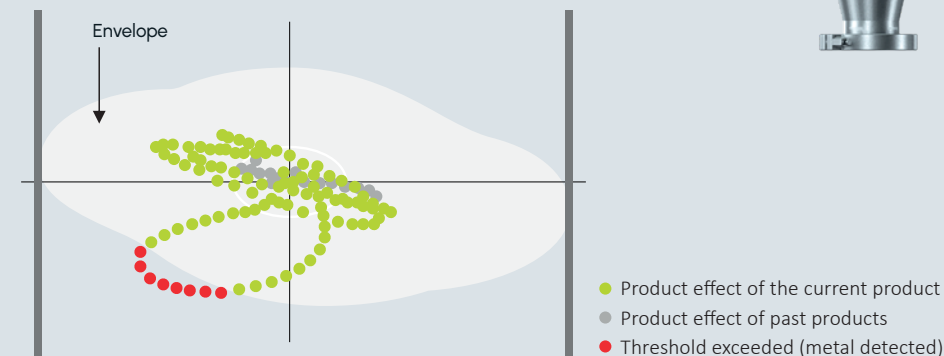
Auto Tracking

Dynamic Auto Tracking enables intelligent tracking of product compensation parameters when product properties change, e.g. if the recipe or temperature changes.

INTUITY Control Unit

- Intuitive user interface with 7" color touch display
- Quick access to important system functions through configurable start screens
- Permanent self-monitoring of all important system functions
- Simple setup process through assistants guided by the menu
- Clear display of all operating messages and system states
- IoT-ready: USB port and integrated Ethernet interface for easy data transfer
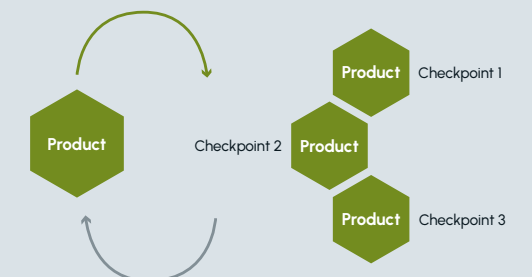
Sensitivity prediction

After the teach-in process, the software automatically indicates the most suitable Inspection Level (IL) with associated sensitivities for ferrous, stainless steel, and non-ferrous metals. The IL with the predicted sensitivities that most reliably meet customer requirements. Customer requirements can then be selected.

FE SS NFE

mm	IL-55	IL-22
FE	0,8	0,8
SS	2,0	1,6
NFE	1,2	1,0

☐ Optimal Inspection Level (IL)
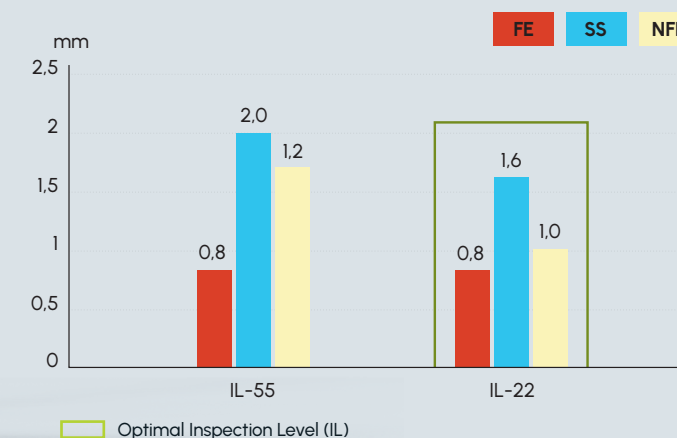
Checkpoints

Checkpoints are used to restore product parameters. In the course of quality assurance, they allow a comparison between the current and previously saved product settings. This makes it possible to reconstruct individual products.

Product — Checkpoint 1
Checkpoint 2 — Product
Product — Checkpoint 3
Product

Statistical evaluations

Various statistical evaluations are possible

THiNK
by SESOTEC
13:58:11
Supervisor (Sup)
Zähler: (2) Product 2
Rejected
Metals Auditcheck
4 0 2 0
Product Custom
Operating
15%

*Detection of stainless steel with product

Compliance Package

Our compliance software package includes the following features:

1. Audit check: guides through the audit routine with the help of a flow wizard and logs all steps.

2. Sensitivity prediction: enables automatic determination of the detection sensitivity of various foreign bodies.

3. Compliance Mode: can set the sensitivity to factory or audit standards to achieve compliance.

4. Integrated Compliance Monitoring: ensures that current sensitivities are continuously monitored at defined time intervals.

Step 1: Internal self-check of the detection system

The ICM monitors the detector by feeding a four-channel signal into the signal chain, which is specifically tuned to the product being tested during the teach-in process. This signal is transmitted at short intervals and thus determines the state of the machine.

Step 2: Compliance Mode

The ICM generates an alarm condition to report non-compliance when the detection prediction exceeds the compliance mode value. In this case, the production line is stopped automatically. All results and incidentsare logged in the logbook and time stamped.

5. Integrated Validation Process: The machine includes an integrated multi-step process for simplified validation of products.
The Integrated Validation Process (IVP) is a documentation tool and provides evidence that the desired quality objectives for the respective product are achieved. The goal or result of the Integrated Validation Process is a certificate issued by Sesotec with the validation results.
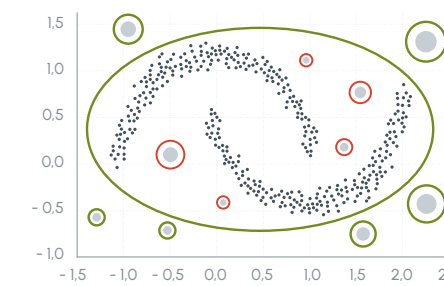
Compliance
Package

Advantages for the customer

- Compliance with food safety standards
- Savings in work time, packaging, and product waste
- Increase production efficiency
- Increase in product quality
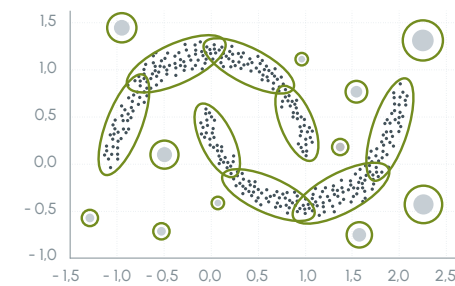- Reduce the risk of inadequate quality controls and records

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THiNK – Metal Detection with Artificial Intelligence

The THiNK software is an additional option for products with very high product effects. THiNK can almost mask the product effect completely, thus increasing detection sensitivity and reducing false rejections. The software is based on artificial intelligence and independently draws conclusions from large amounts of data.

Multi-simultaneous frequency

THiNK Technology

THiNK about it …

THiNK was developed specifically for the INTUITY. Different license models are possible for the intelligent software. Please feel free to contact us at any time if you are interested.

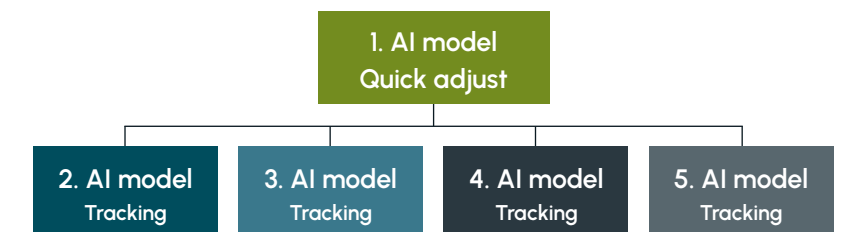- Product effect ◯ Detection threshold ◯ Metal foreign body (detected) ◯ Metal foreign body (not detected)

- Every product leaves a „digital fingerprint"
- A metal trigger threshold is calculated and stored around these points
- Inside the threshold, the signals are assigned to the product effect, with those outside detected as metal

- Multidimensional AI algorithms calculate the detection threshold for each product more accurately and stably
- AI models thus create multiple detection thresholds
- Detection sensitivity is thus significantly increased and false triggering reduced

THiNK Auto-Tracking

Production data and parameters are collected via this function, which is used in AI model building. The model is continuously adapted to the production. This ensures reliable production with maximum detection performance.

1. AI model
Quick adjust

2. AI model Tracking | 3. AI model Tracking | 4. AI model Tracking | 5. AI model Tracking

Advantages for the customer

- More security against product recalls
- Less food waste
- Increase production efficiency
- Increase in product quality
- Higher profitability
- Reliable detection for products with high product effects

LIQUISCAN PL GO

The standard model for pumped products

For liquid and pasty products in pump lines

2.2 mm	**IP** 66/69	**Single or Dual**
Detection*	Protection class	Frequency

Constant monitoring

A signal combination of four lights and a horn indicates the current operating status of the device.
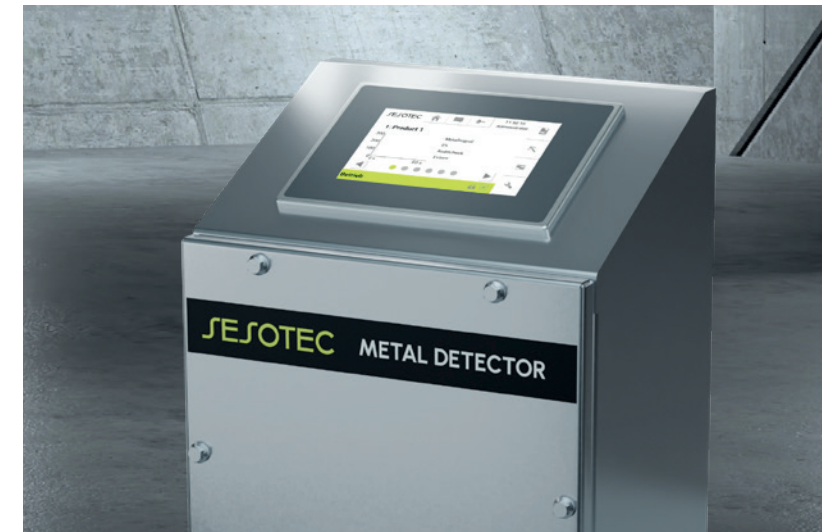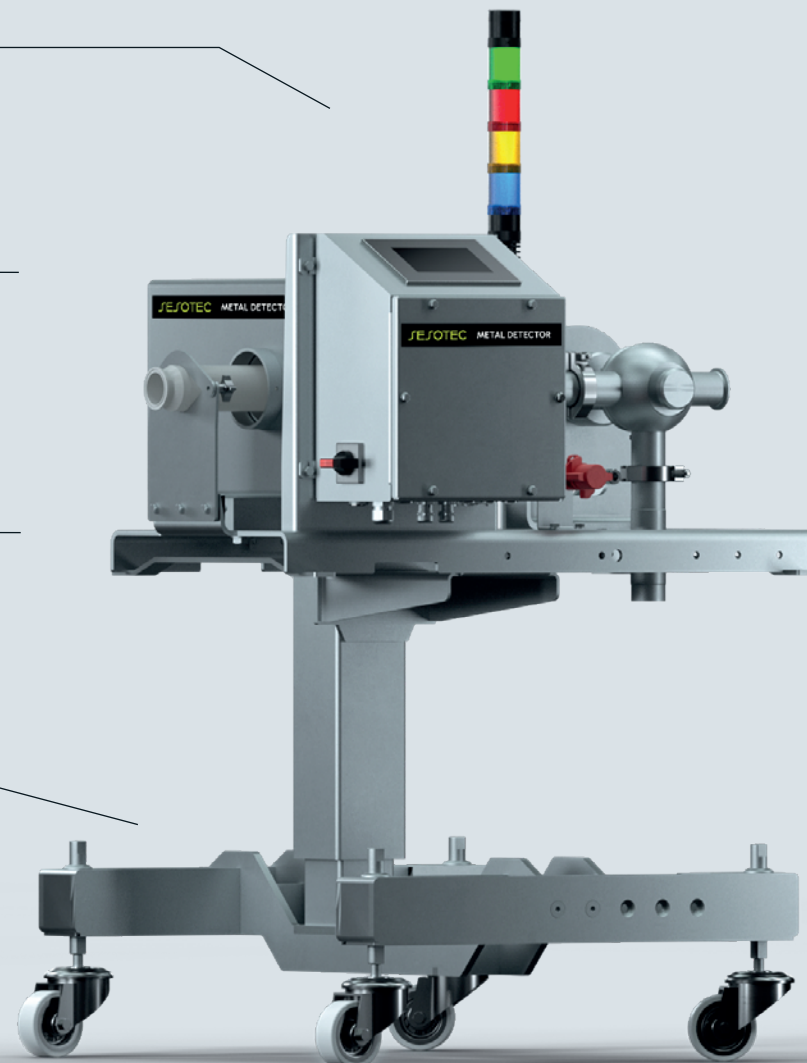
Auto-Learn Function

Auto-Learn function or manual product compensation for optimal adaptation to the intrinsic conductivity of the product to be investigated.

Rugged design

The solid stainless steel housing provides high stability against electrical interference. The unit is designed for short setup times with changing applications.

Easy integration

With quick connectors in piping systems up to 100 mm nominal width as well as an optional horizontal and vertical easily adjustable stand.

GENIUS ONE Control Unit

- New user interface with touch display for easy operation
- Faster teach-in, fewer operating errors and short operating times
- Cost and time savings through effective operating and service functions
- IOT-Ready: USB and Ethernet interface on board, externally routed hardware connections optionally available via Connect package

Efficient Audit check

For simplified functional testing, there is an opening between scanning pipe and coil for inserting flexsticks with ferrous, stainless steel, and nonferrous test samples.

Optional interfaces and protocols

- INTERLINK: Integration of devices into the company network via OPC UA , possibility of visualization via Insight.WEB
- COMGateway.Embedded: Integration of devices into the company network via OPC UA, SSTProt, MQTT or REST API
- PROFIBUS: Data exchange via bus system
- PROFINET: Real-time data transfer via TCP/IP
- USB and Ethernet Interface (Connect package)

Optional: Automatic Function test module
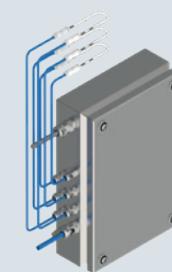
The new, optional function test module offers you additional safety and tetsting without additional effort. *

- Automatic function check: pneumatic hose between coil and sensing tube, in which a test sample can be moved through the coil by compressed air
- Time and cost savings by eliminating the need for manual function testing with the flexstick
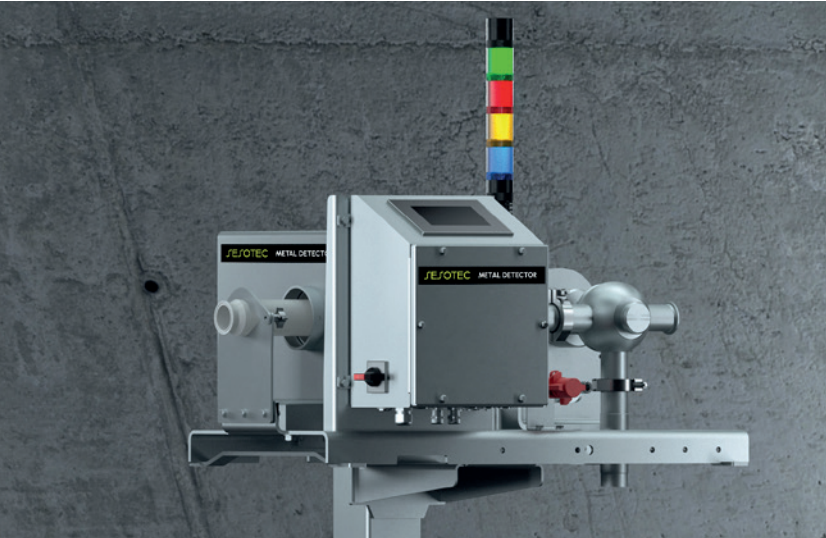- No risk of product contamination during testings

*with product at a nominal diameter of 40 mm

*Application-dependent due to nominal size and temperatures

For liquid and pasty products in filler applications

Free consultation
https://www.sesotec.com/emea/en/contact

For liquid and pasty products in pump lines

Free consultation
https://www.sesotec.com/emea/en/contact

Technical data LIQUISCAN VF IC / GO

Type	Scanning tube nominal diameter Ø NW	Installation length EL	Weight (kg)
LIQUISCAN VF GO/IC	54 mm	235+L	115
Scope of delivery	Compact unit with integrated detection coil and control unit GENIUS ONE or INTUITY including protective cover over control unit; three-color LED signal lamp and pipe connection thread RD80x¼"		
Product temperture and conveying pressure	-10 °C to +20 °C at max. 30 bar delivery pressure -10 °C to +40 °C at max. 15 bar delivery pressure		

Great variability due to different pipe connections Filler-specific versions/options available
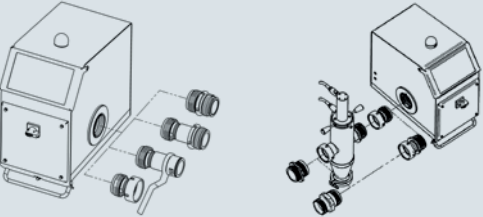
Options

- UL/CSA version - on request
- Preparation W
- Holder for E2 box for separated product at the foot under bad outlet
- E2 box with lockable lid (only in combination with holder)

Optional reject mechanisms

	Piston valve	Ball valve	Arc valve
Application	Suitable for pulpy, pasty products without large product pieces; not suitable for aqueous products	Especially for liquid or pasty products, also with large pieces (e.g. muscle meat)	Suitable for soup filling and very watery products

Accessories

Test sample Flexstick Blue

Other connection cables
see data sheet „LIQUISCAN VF connection cable

Interface for data exchange from GENIUS ONE or INTUITY into a central company network

INTERLINK Modul
Communication module for digitally connecting Sesotec devices to the central company network

Insight.NET & Insight.WEB
Visualization, logging, remote access, and diagnostics

Only for VF IC

THiNK permanent license	Can be purchased once per device. The period of use is unlimited.
Permanent license Integrated Compliance Monitoring (ICM) including hardware	Can be purchased once per device. The period of use is unlimited.
Permanent license Integrated Validation Process (IVP)	Can be purchased once per device. The period of use is unlimited.

Technical data LIQUISCAN PL GO

Type	Scanning tube nominal diameter Ø NW	Installation length with reject system	Scanning sensitivity	Maximum conveying speed	Protection class
LIQUISCAN PL GO	40 mm / 1,5 " 50 mm / 2 " 65 mm 80 mm / 3 " 100 mm / 4 "	806 mm 808 mm 843 mm 848 mm 863 mm	from 0.4 mm Fe and 0.8 mm V2A without product	0.6 m/s	IP65
Scope of delivery	Metal separator with separate detection and separation units, including mounting frame and at-tached Control Unit GENIUS ONE; inlet and outlets for material with clamp connections DIN 32676 (Tri-Clamp)				
Product temperature and conveying pressure	-10 °C to +110 °C with a conveying pressure of max. 4 bar -10 °C to +70 °C with a conveying pressure of max. 8 bar -10 °C to +60 °C with a conveying pressure of max. 10 bar max. +121 °C short-term for daily cleaning (30 minutes at max. 2.5 bar)				

Options

- UL/CSA version - on request
- Option long frame and pneumatic components
- Compressed air monitoring
- Function monitoring of the separating unit
- Dual frequency
- COMGateway.Embedded for integration into the company network
- Connect package – USB and Ethernet connections
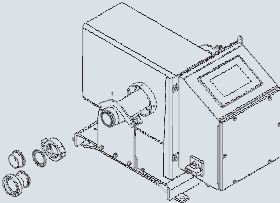- Automatic function test module
- Mobile stand
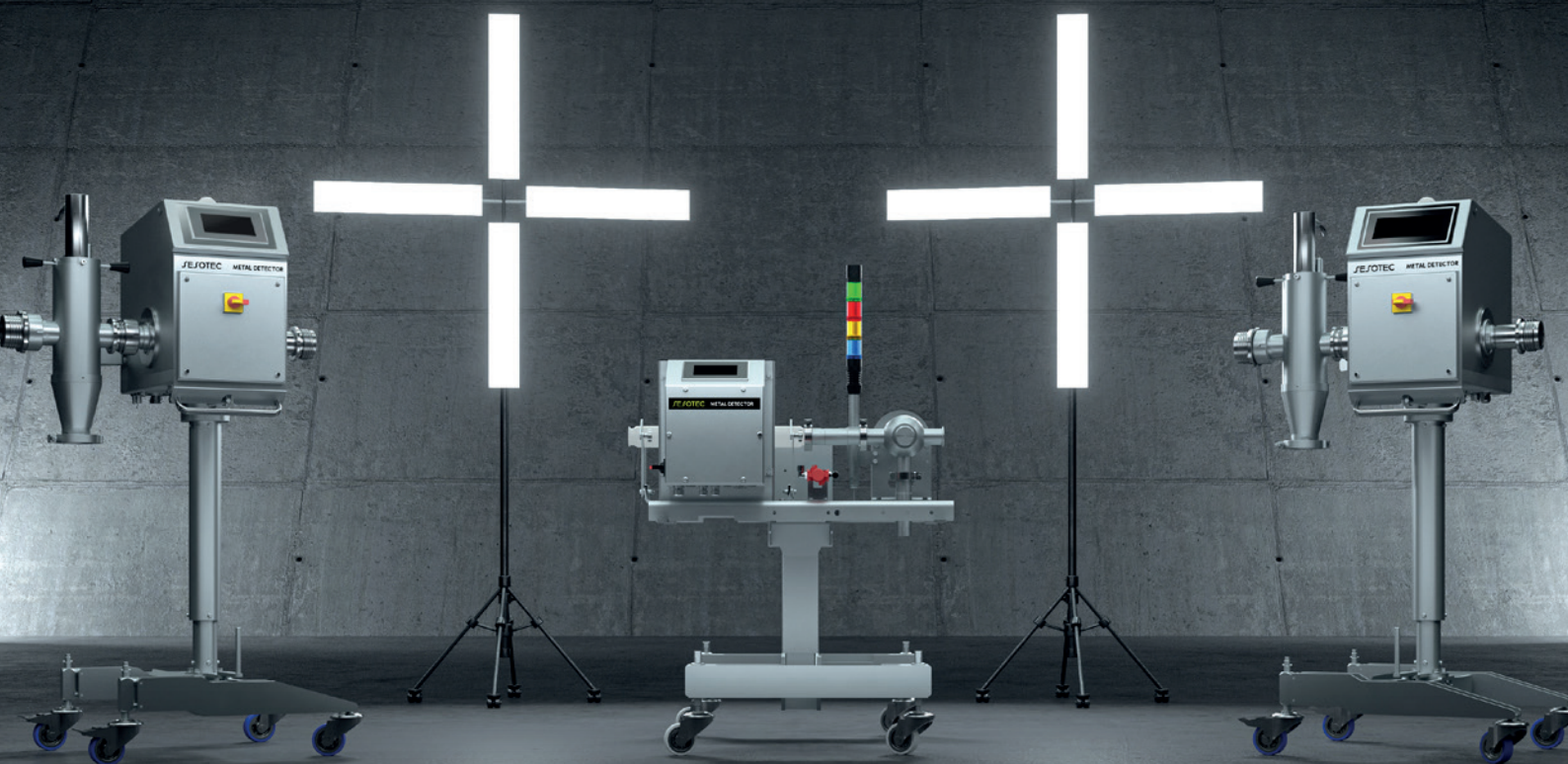
Optional reject mechanisms

	Arc valve	Ball valve
Application	Suitable for liquid and very watery products without pieces (e.g., soup filling)	Alternative for liquid or pasty products with large pieces

Accessories

Test sample Flexstick Blue

Interface for data exchange from GENIUS ONE into a central company network

INTERLINK Modul
Communication module for digitally connecting Sesotec devices to the central company network

Insight.NET & Insight.WEB
Visualization, logging, remote access, and diagnostics

Easy integration due to standard pipe connection system Tri-Clamp and optional transitions.

Imprint

SESOTEC