



C

Color sensor

M

Metal sensor

N

NIR sensor

SORTING SYSTEMS

VARISORT+

Multisensor sorting system for the
Recycling Industry

Efficient sorting of various material streams

Fluctuating material availability and the associated fluctuating material quality are among the biggest challenges facing recycling companies – and can quickly impact their profitability. Our VARISORT+ reliably detects and separates plastic types, colors, shapes, metals and foreign objects in various material streams. Thanks to its modular plug-and-play design, it can be integrated into any production line and can also be operated with a customer-supplied conveyor belt.

Maximum productivity

Thanks to a conveyor belt with up to 4 m/s belt speed, the VARISORT+ achieves very high throughput rates (up to 8 t/h) and at the same time convinces with a reject reliability of up to 99%, even with poor material quality.

Optimized machine design

The new and improved machine design guarantees high system availability, quick and easy cleaning, and low maintenance requirements. The modular design also allows individual customer- and product-oriented solutions.



Application areas

The application areas of the VARISORT+ family are versatile. Primarily, the devices are specialized in plastic and light packaging recycling as well as metal and electrical scrap recycling.



PET recycling – plastic bottles



Mixed plastic & household waste recycling



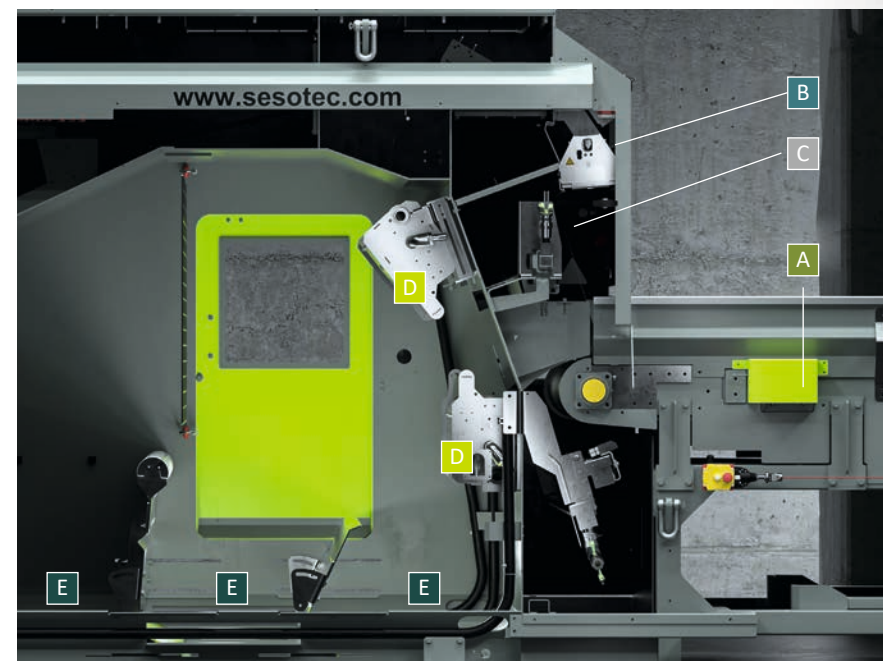
Plastics recycling



Metal scrap recycling



E-waste recycling



The system has the following components:

- A** Metal sensor: for the detection of smallest metal impurities
- B** NIR sensor: for the detection of a wide variety of materials and material combinations
- C** Color sensor: for the recognition of objects and different colors
- D** Blow-out system: with various nozzles for the separation of foreign bodies with precise timing and positioning
- E** Reject systems: the three-chute design enables the sorting of three material fractions simultaneously

Flexible system configuration

- Combination of up to three sensors
- Selection of different lighting systems
- Four different working widths
- Operation also possible with conveyor belt provided by plant or customer

Options for maximum efficiency

- A three-chute design allows sorting of three material fractions simultaneously
- A blow-out system with a finer valve grid enables problem-free sorting of smaller material sizes
- A conveying chute matched to the sorter ensures optimal distribution of the material and a homogeneous stock flow

Functionality of the VARISORT+

With the flexible VARISORT+ sorting system, many different material streams can be sorted – efficiently, flexible and profitable.



Efficient

The VARISORT+ reliably detects and sorts plastic types, colors, shapes, metals and foreign objects from different material streams. It achieves a high throughput of up to 8 t/h and convinces with a reject reliability of up to 99%.



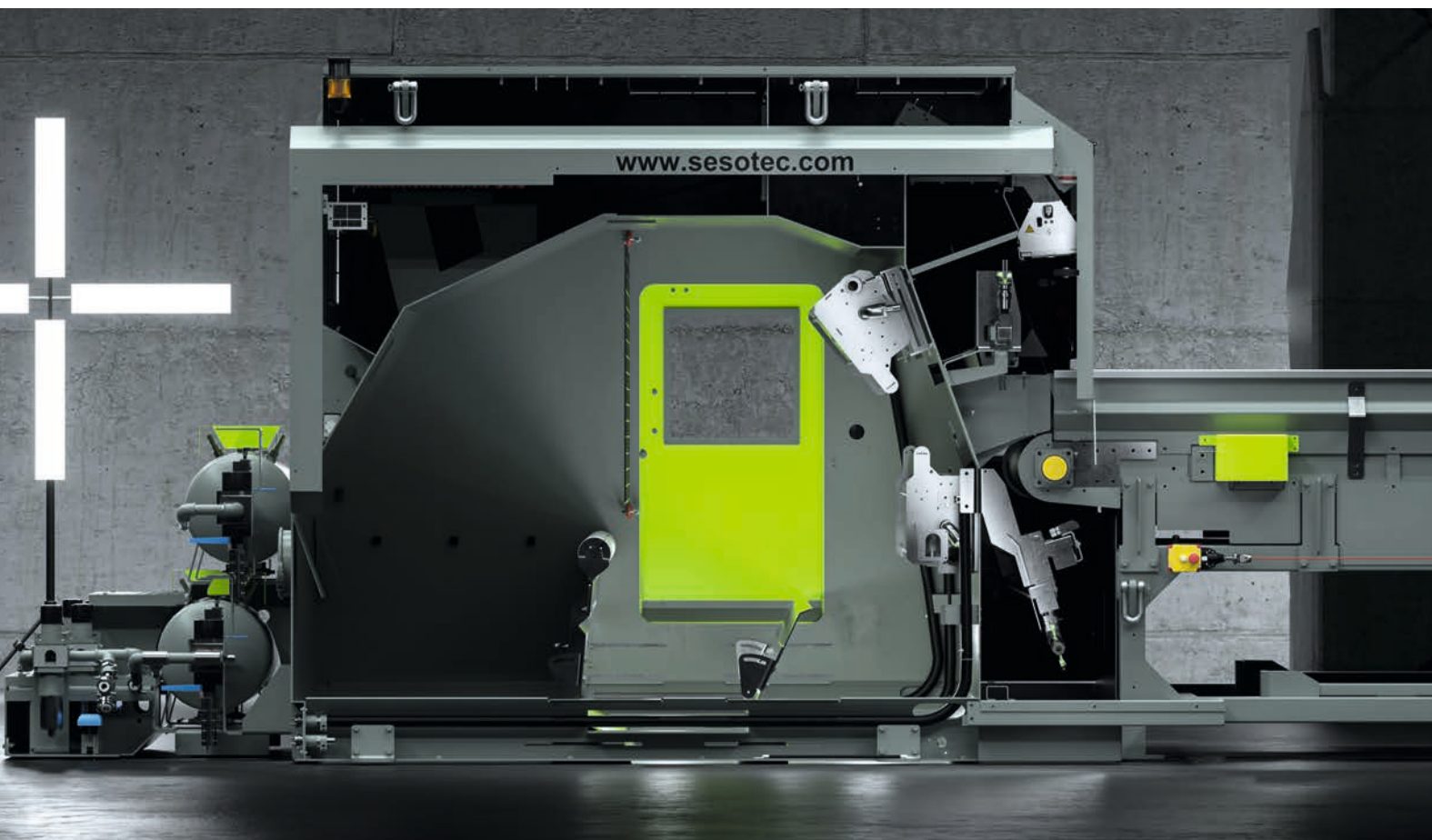
Flexible

The combination of up to three sensors, different working widths, the choice of different lighting systems and the option of operation with a customer- or plant-provided conveyor belt allow maximum flexibility.



Profitable

The VARISORT+ is synonymous with a profitable sorting process thanks to the best possible sorting results even with poor material quality, high system availability with low maintenance and cleaning requirements, and a flexible system configuration.



Color sensor

High-resolution color line scan camera for approximately 17 million teachable colors combined with innovative lighting options

- Incident light – detection of reflection in opaque material
- Transmitted light – detection of transmission with transparent material
- Sorting by colors and shapes
- Separation of unwanted materials like e.g. silicone cartridges



Metal sensor

Inductive metal sensors for identification/detection of magnetic and non-magnetic metals

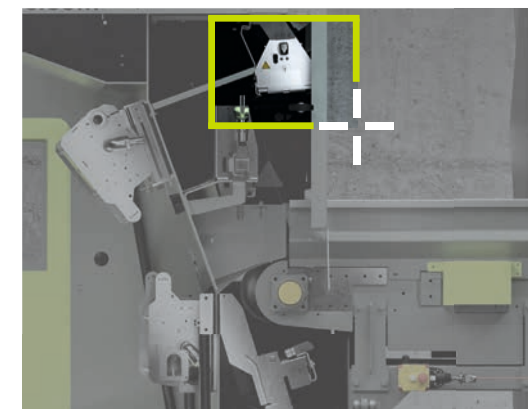
- Detection from 1 mm
- Easy to operate
- Simple sensitivity settings
- M – Detection of all metal types
- M+ – Identification of stainless steel



NIR sensor

Hyperspectral camera for identification of different polymer types and materials as well as for various special applications

- Detection of PET trays as well as bottle/label combinations
- Recognition of different material types (LDPE / HDPE)
- Detection of mono and multilayer materials



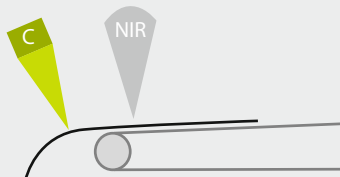
Possible sensors composition



The lighting options

To have the right solution for every requirement, three different lighting systems are available for the VARISORT+. The BASIC, CLEAR and FLASH options have different sorting efficiencies in color sorting. From simple sorting tasks to the efficient detection of clear material to the optimal detection of transparent and non-transparent material – for the highest demands on color sorting – everything is thus possible with the VARISORT+.

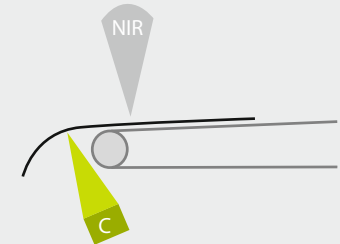
BASIC



Color and shape detection on conveyor belt for rugged applications

- For standard sorting tasks (sorting of clear material) and the detection of opaque material
- For use in the most difficult conditions (dirt, labels, etc.)
- Low maintenance requirements
- Low operating requirements

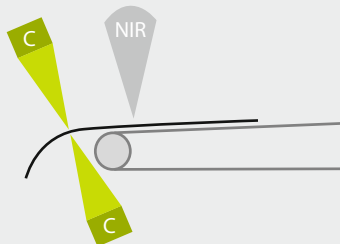
CLEAR



Color and shape recognition in free fall for distinguishing the finest color nuances in transparent materials

- For optimal detection of clear materials
- For high requirements on the color sorting of transparent materials
- For high demands on object detection (object in a bottle)
- Easy adjustment of color detection

FLASH



Color and shape recognition in free fall for distinguishing the finest color nuances in transparent, non-transparent and semi-transparent materials

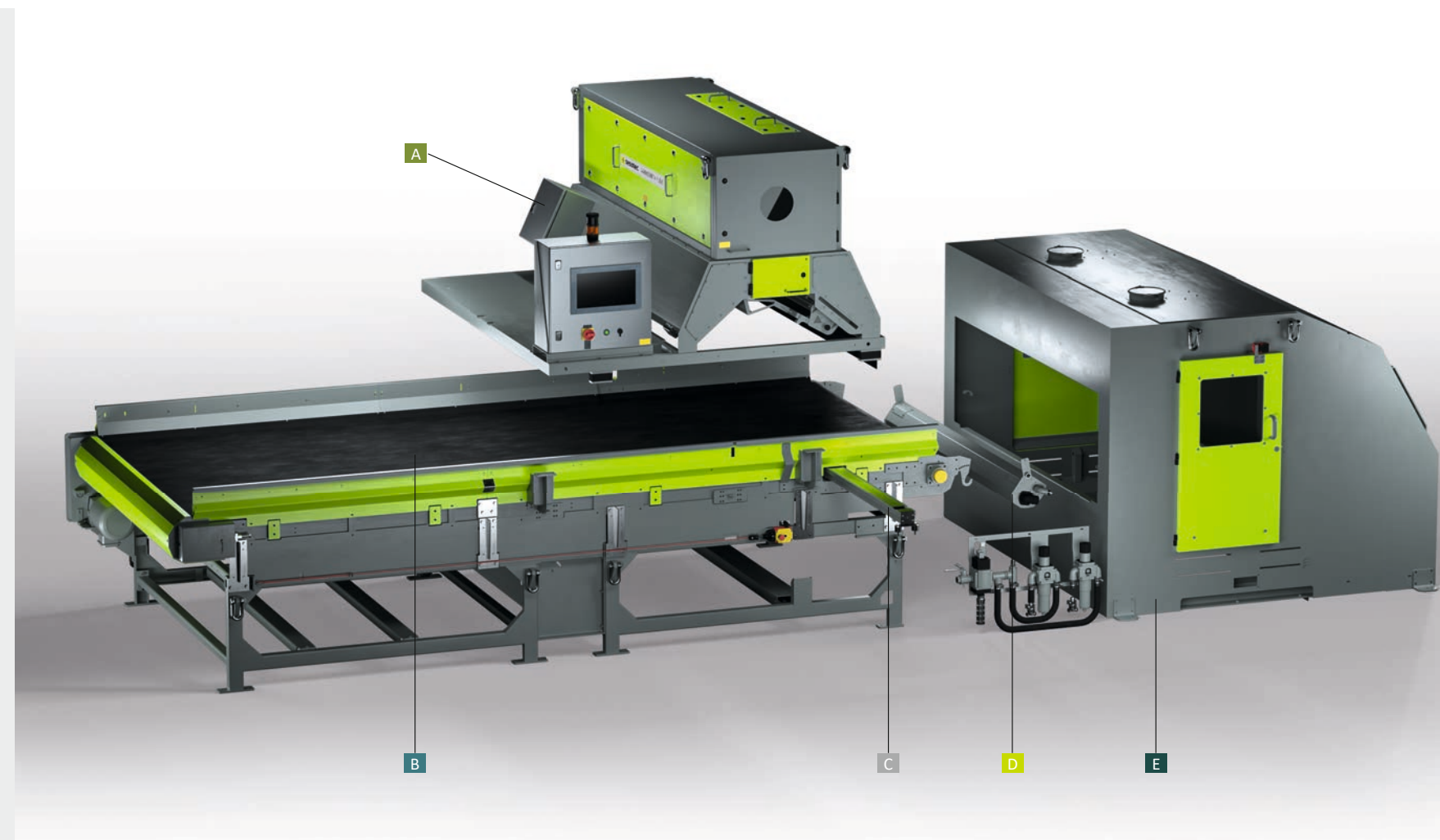
- For highest demands on color sorting and detection of transparent and non-transparent material
- Best material and color detection (light, white, silver, black, etc.) through the combination of signals

Sorting efficiency of the VARISORT+ options

The result of combining the advantages of the two technologies BASIC and CLEAR is the best color and material recognition of both transparent and non-transparent material: FLASH.

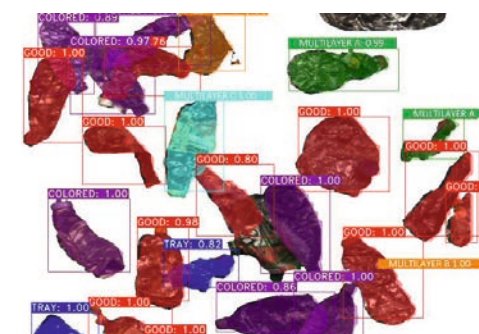
Integration of the sensors into existing plants

Depending on requirements, the VARISORT+ FLEX can be configured either as a complete solution with rejector housing and conveyor belt or as individual components. The VARISORT+ FLEX is particularly suitable for integration into existing plants as a renewal or upgrade and for suppliers of complete solutions in the recycling sector.



Artificial Intelligence

Based on artificial intelligence (AI) in combination with the innovative sensor technology, the VARISORT+ enables the sorting of previously indistinguishable materials.



A AI-assisted color, shape and NIR sensor for detecting objects of a wide range of colors, shapes and materials

B High speed conveyor belt

C Metal sensor: for the detection of smallest metal impurities

D Blow-out system: with various nozzles for the separation of foreign bodies with precise timing and positioning

E Rejector housing

VARISORT+

The high-end sorting system for plastic and light packaging recycling

CMN

Sensors

4

Work widths

350 mm

Grain size

Innovative lighting systems

BASIC for color and shape detection on the conveyor belt, CLEAR for in-flight detection to distinguish the finest color nuances in clear material, and the innovative FLASH technology for the best possible color detection and for detecting bottles with additives.

Optional 3-chute system

A third discharge chute with an additional discharge chute enables the division into 3 different material streams and thus allows maximum productivity.

Optimized machine concept

The entire machine concept has been optimized once again - for highest throughputs and purities as well as the reliable ejection of black materials. The integration of the sensor system and blow-out unit into the separator housing also makes the VARISORT+ particularly compact.



Application in plastic and light packaging recycling

Free consultation

<https://www.sesotec.com/emea/en/contact-form>



Application areas

Sensor combination/application	C / CN / CM / CMN			N	MN
	Basic	Clear	Flash		
Bottle recycling	+++	+++	+++	+	+
Mixed plastics (PS/PE/PP)	+++	+	++	+	+
Light packaging	+++	++	++	+	+
Funktional materials	++	++	+++	+	+
Color sorting transparent	+	+++	+++		
Color sorting intransparent	+++	+	+++		
Metal detection	Option (M): Metal sensor				

Technical data

Working width [mm]	1024	1536	1920	2816
Throughput up to [t/h]	3	4.5	6	8
Number of valves	64/40	96/60	120/75	160/110
Valve pitch [mm]	16/25.6	16/25.6	16/25.6	17.6/25.6
Suitable grain sizes [mm]	15–350			
Power [max. KVA]	2–4			
Temperature range	+5°C up to +40°C			
Protection class	IP 54			

Options

Conveyor belt length	3 m, 4.4 m or 6.2 m conveyor belt with a speed of up to 4 m/s for optimum distribution and separation of the elements in the material flow to increase throughput
Three-chute version	Additional third chute and second valve bar for sorting the material flow into three fractions
Valve grid	Alternative valve pitch possible for certain sorting applications
Sensor upgrade	Pre-wiring for possible sensor upgrade
M+: selective metal sensor	Selective inductive multi-channel detection coil for detection of stainless steel, steel and non-ferrous metal
Vibrationsförderrinne	Vibratory feeder chute
Roll vertex	Roll vertex on the separator plate to avoid material accumulation
Belt cleaner	Rotating brush under the conveyor belt for cleaning the belt
Device division	For parallel sorting of two different material streams or for 2-stage sorting

VARISORT+ WEEE

The high-end sorting system for metal & electrical scrap recycling

CMN

Sensors

4

Work widths

250 mm

Grain size

Inverse sorting technology

One of the special features of the VARISORT+ WEEE is the inverse sorting. The combination of camera and metal sensors enables very high degrees of purity in the sorting of electronic scrap while optimizing the consumption of energy and compressed air.

M+ coil

A multi-channel inductive stainless steel detection coil enables the highly precise detection of stainless steel materials (16 mm x 30 mm).

Flexible sensor combination

All existing sorting sensors can be combined within one machine, depending on the sorting requirement: a camera sensor for detecting different types of material by color, shape or size, a NIR sensor for distinguishing the different polymers and an inductive metal sensor for detecting all types of metal.



Sorting system for metal & electric scrap recycling

Free consultation

<https://www.sesotec.com/emea/en/contact-form>



Application areas

Sensor combination/application	M	M+	C	CM(+)	CN	CM(+) N
Metal detection	+++	+++	+	+++	+	+++
Non-metal detection				+++	+	+++
Cable detection	+	+	++	+++	++	+++
Stainless steel detection		+++		(+++)		(+++)
Copper-aluminum distinction			++	+++	++	+++
Circuit board detection		+		++		++
Zorba factions upgrade			+	+++	+	+++
Processing of engineering plastics				+	++	+++

Technical data

Working width [mm]	1024	1536	1920	2816
Throughput up to [t/h]	3	4.5	6	8
Number of valves	128	192	240	320
Valve pitch [mm]	8	8	8	8.8
Suitable grain sizes [mm]	10–250			
Power [max. KVA]	4–8			
Temperature range	+5°C up to +40°C			
Protection class	IP 54			

Options

Device division	For parallel sorting of two different material streams or for 2-stage sorting
Conveyor belt length	4.4 m or 6.2 m conveyor belt with a speed of up to 4 m/s for optimum distribution and separation of the elements in the material flow to increase throughput
Valve grid	Alternative valve pitch possible for certain sorting applications
Sensor upgrade	Pre-wiring for possible sensor upgrade
M+: selective metal sensor	Selective inductive multi-channel detection coil for detection of stainless steel, steel and non-ferrous metal
Vibratory feeder chute	Vibratory feeder for optimal distribution and separation of the elements of the material flow
Roll vertex	Roll vertex on the separator plate to avoid material accumulation
Film chute	Foil chute between conveyor belt and separator housing for separation of light material
Belt cleaner	Rotating brush under the conveyor belt for cleaning the belt

VARISORT+ FLEX

The flexible sensor technology in plastics & light packaging recycling

CMN

Sensors

4

Work widths

350 mm

Grain size

Innovative sensor technology

Thanks to AI-supported color, shape and polymer recognition in a sensor bridge, the VARISORT+ FLEX works particularly efficiently and precisely.

Modular concept

Depending on the sorting task and requirements, the VARISORT+ FLEX is available either as a complete solution with separator housing and conveyor belt or as individual components.

Maximum plant availability

Thanks to its sophisticated design, the VARISORT+ FLEX impresses with maximum system availability while requiring the least amount of maintenance and cleaning.



Flexible sensor technology for plastic & light packaging recycling

Free consultation

<https://www.sesotec.com/emea/en/contact-form>



Application areas

Sensor combination/application	C	CN	CM	CMN	N	MN
Bottle recycling	+	+++	+	+++	++	++
Mixed plastics (PS/PE/PP)	+		+	+++	++	++
Light packaging	+	+	++	+++		+++
MSW	+	+++	+	+++	++	++
Color sorting	+++	+++	+++	+++		
Metal detection	Option (M): Metal sensor					

Technical data

Working width [mm]	1024	1536	1920	2816
Throughput up to [t/h]	3	4.5	6	8
Number of valves	64/40	96/60	120/75	160/110
Valve pitch [mm]	16/25.6	16/25.6	16/25.6	17.6/25.6
Suitable grain sizes [mm]	15–350	15–350	15–350	15–350
Power [max. KVA]	2–4			
Temperature range	+5°C up to +40°C			
Protection class	IP 54			

Options

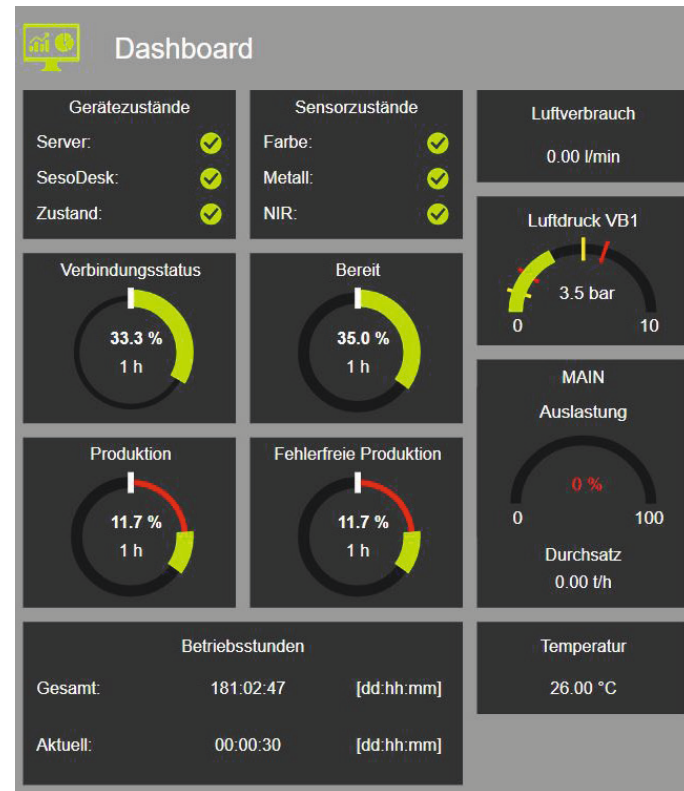
Device division	Division of the sorter for parallel sorting of two different material streams or for 2-stage sorting
Valve grid	Alternative valve pitch possible for certain sorting applications
Sensor upgrade	Pre-wiring for possible sensor upgrade
M+: selective metal sensor	Selective inductive multi-channel detection coil for detection of stainless steel, steel and non-ferrous metal

VISUDESK

To improve product quality and the efficiency of sorting and recycling plants, process data is essential for operators. With the VISUDESK visualization software, this data can be easily and clearly displayed on all Sesotec equipment. Based on this data, they can derive targeted measures to increase efficiency and effectiveness on the one hand and minimize downtimes on the other. The OPC UA-based machine communication model is implemented both on the devices and on a server and thus enables both stationary and mobile access to the application.

Advantages of VISUDESK

- Control of the sorting process
- Optimization of the sorting system
- Predictive maintenance
- Reduction of downtime
- Fact-based decisions

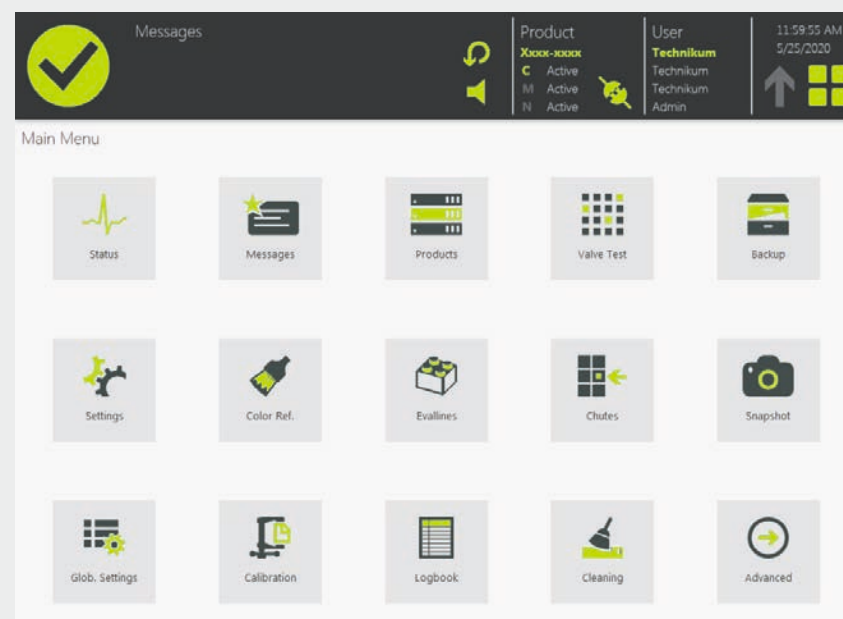


Dashboard visualization of process data, valve data, evaluation data and material data

SesoDesk

Our SesoDesk operating software allows the analysis results to be displayed either in a table or in diagrams.

- Modern design
- Error/status messages
- Intuitive operation
- Logbook
- Integrated remote maintenance
- Predictive maintenance



Main menu of the SesoDesk user interface

Fast and reliable service



Phone support

Many questions and incidents can be solved by phone. Our free telephone support is available for you daily from 6 am to 8 pm, on weekends from 8 am to 5 pm.

Service Hotline Sorting

+49 (0) 8554 - 308 129
service.sorting@sesotec.com



Remote Access

Sesotec service technicians have direct access to your machines via Ethernet connection and can perform error analyses, optimizations and parameter settings.



Augmented Reality

In addition to telephone support and remote access, Sesotec also offers video-based support with augmented reality. This is done via the TeamViewer Pilot App.



Want to learn more about our technology for food manufacturing?

Get in touch with us directly! We look forward to advising you.

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