C	M	N
Color Sensor	Metal Sensor	NIR Sensor

FLAKE PURIFIER

Multi-sensor sorting systems for the
recycling of plastic flakes and regrind

Reliable sorting of plastic flakes and regrind

The user-friendly FLAKE PURIFIER efficiently, precisely, and profitably detects and sorts plastic flakes and regrind by plastic type, color, and metallic contaminants. Thanks to high throughput, minimal loss of good material, and high user availability, the FLAKE PURIFIER is exceptionally profitable.

Flexible

- Freedom to choose the sensor configuration depending on the application
- Available with or without connection set
- Two or more sorting stages possible on one device

Individual

- Various preset sorting programs – manually adjustable by the operator on-site
- Customizable color settings
- Adaptable plastic library

Sustainable

- Sensors can be retrofitted at any time
- Includes software upgrades

Areas of application

The application areas of the FLAKE PURIFIER family are versatile. The devices reliably sort a variety of materials at high throughput rates with maximum efficiency and minimal loss of good material.

PET Flakes

Oxygen- / UV-Blocker Flakes

HDPE Flakes

PE / PP Regrind

Three steps to your flexible sorting system

System configuration
- Working width
- Sensor combination
- Integrated resort track
- VISUDESK-visualization software

Flexible service package
- On-site commissioning
- Optional on-site or remote
- Support optimization
- Warranty packages

Higher profitability

Optional connection set: Planning and integration into the recycling line

For seamless integration of our PURIFIER+ into your facility, we optionally offer a perfectly coordinated set. This includes a feed hopper, level sensors with speed control for the vibrating conveyors, as well as the corresponding steel construction and suitable discharge chutes.

The system has the following components:

A Metal sensor: for detecting the smallest metal contaminants

B Near-infrared sensor: for detecting various materials and combinations of materials

C Color & shape sensor: for detecting objects and a variety of colors

D Blow-out system: with various nozzles for time-accurate and position-accurate separation of foreign objects

E Reject systems: optimized aerodynamic design for discharge of impurities

Our solution to your challenges

Our FLAKE PURIFIER can be perfectly tailored to your needs through the flexible combination of sensors. It sorts plastic flakes efficiently and accurately, ensuring a high level of material purity. The multi-sensor sorting system reliably detects the smallest contaminants, resulting in only minimal loss of good material. For added sorting efficiency, you also have the option to equip your system with various features.

Your challenge

Ensuring purity is crucial for the quality of recycled plastic, especially in the context of producing food-grade recyclate. This is particularly true for processes such as bottle-to-bottle recycling, where the requirements are much more demanding than in conventional applications.
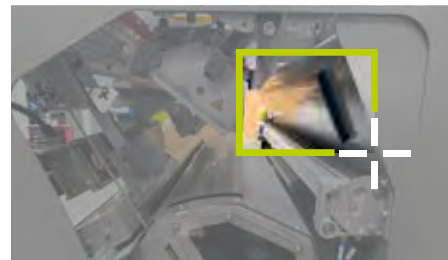
Our solution

Multi-sensor sorting systems offer the optimal solution to ensure:

- High material purity to meet the highest quality requirements
- High material throughput for more profitability
- Minimal loss of good material for highest efficiency

Innovative sensors

⌐C⌐ Color sensor

Color and shape recognition with the Sesotec C-Sensor (Color) is performed by an independent camera system. This allows the sensor to be optimally adjusted to the respective sorting task. Innovative LED lighting enables both **economical and efficient sorting:** In addition, the **detection of white-opaque TiO2 flakes** is also possible.
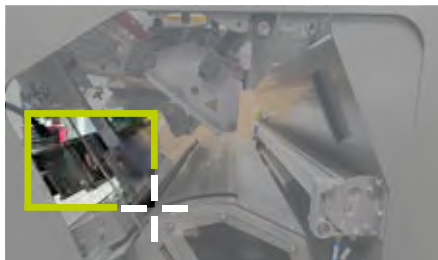
⌐M⌐ Metal Sensor

The Sesotec M-sensor (Metal) reliably detects the **smallest metal contaminants,** regardless of their magnetic properties. All our experience from over 40 years of metal detection in various industries lies in this sensor. It stands for **precision, robustness and reliability.**

⌐N⌐ Near Infrared Sensor

The Sesotec NIR **hyperspectral** sensor with halogen illumination is the proven solution for high-end applications such as bottle-to-bottle, tray-to-tray and other food-grade plastic sorting tasks. The high-precision sensor **reliably and simultaneously** detects a wide range of foreign plastics such as labels (PVC), caps (HDPE, PP) or even PET-like plastics (e.g. PET-G).

VISUDESK

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

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

Added Value through VISUDESK

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

Recovery Option

Efficient material recovery

Via the additional separating unit, contaminated material is examined separately and returned to the material flow with a recovery rate of up to 98%.

1 **Main Input**
Contaminated input material

2 **Final Accept**
Purified end product

3 **First Stage Reject**
Heavily contaminated product:
Discarded foreign substances and off-colors

4 **Second Stage Accept**
Contaminated material:
Result of cleaning step 3 (First Stage Reject)

5 **Final Reject**
Final poor product

FLAKE PURIFIER+

The high-end sorting system
for flakes and regrind materials

Application for sorting flakes and regrind materials in plastic recycling

Free consultation

www.sesotec.com/en/contact

CMN	2	2–20 mm
Sensors	Working widths	Grain size

Efficient

- Very high material throughput of up to 3.8 t/h
- Option for integrated recovery of good material
- Later sensor upgrades possible

Precise

- Reliable detection and sorting by plastic types, colors, metals, and foreign bodies with just one system
- Very high purity level of the sorting fractions up to 99.999%
- In contrast to simple NIR technologies, the HYPERSPECTRAL technology allows simultaneous sorting of multiple foreign plastics
- Minimal loss of good material

Profitable

- Best possible sorting results even with poor material quality
- High system availability due to low maintenance and cleaning effort
- Flexible system configuration
- Profitable sorting process

Technical data

Working widths [mm]	1024	1280
Throughput up to [t/h]	3	3.8
Number of valves	320	400
Valve grid [mm]	3.2	3.2
Suitable grain sizes [mm]	2-20	
Power [max. KVA]	3.4	
Temperature range	+5°C to +40°C	
Protection class	IP 54	

Available options

Device division	Splitting of the sorting device for parallel sorting of two material streams with different grain sizes
Sensor upgrade	Pre-wiring for potential sensor upgrades
Connection set	Set consisting of feed hopper, level sensors with speed control, and discharge chute
VISUDESK visualization software	Web-based visualization of Sesotec systems via OPC UA

Areas of application

Sensor combination/application	C	N	CM	CN	CMN
Main application			Material cleaning		
Plastic sorting		+++		+++	+++
Color sorting	+++		+++	+++	+++
Metal separation	+		+++	+	+++

FLAKE PURIFIER PO

The high-end sorting system
for Polyolefins

CMN	2.048 mm	4–20 mm
Sensors	Working width	Grain size

Application for sorting flakes and regrind materials in plastic recycling

Free consultation

www.sesotec.com/en/contact

Powerful

- Very high material throughput of up to 5.5 t/h
- Fine valve grid for precise ejection of contaminants
- Optimized NIR technology for the detection of polyolefins
- Reliable color detection

Flexible

- Flexible sensor configuration for precise ejection
- Later sensor upgrades possible
- Up to 4 different sorting tasks on one device

User-friendly

- Optimized for quick maintenance tasks
- Low cleaning effort due to self-cleaning function

Technical data

Working width [mm]	2048
Throughput up to [t/h]	5.5
Number of valves	480
Valve grid [mm]	4.26
Suitable grain sizes [mm]	4–20
Power [max. KVA]	4
Temperature range	+5°C to +40°C
Protection class	IP 54

Available options

NIR upgrade	Extended wavelength of the NIR sensor for sorting typical impurities in PET material
Sensor upgrade	Pre-wiring for potential sensor upgrades
Connection set	Set consisting of infeed hopper, level sensors with speed control, and discharge chutes
Dust and Label Extraction	Connections for suctioning off dust and labels
VISUDESK visualization software	Web-based visualization of Sesotec systems via OPC UA

Areas of application

Sensor combination/application	C	N	CM	CN	CMN
Main application			Pre-sorting		
Plastic sorting		++		++	++
Color sorting	+++		+++	+++	+++
Metal separation	+		+++	+	+++

MAG FLAKE

The high-end-sorting-system for metallic contaminants
in plastic flakes and regrind materials

M	3	2–20 mm
Sensor	Working widths	Grain size

Application for sorting metallic contaminants in plastic recycling

Free consultation

www.sesotec.com/en/contact

Precise in detail

- Reliable detection and ejection of the smallest contaminants from 1 mm in size
- Suitable for a high number of metal particles in the plastic stream

Innovative

- Optimized sensor technology and chute geometry for the ejection of metallic contaminants of all kinds
- Very high resolution of the metal detection bar for targeted ejection of metallic contaminants

Profitable

- Low material loss compared to other solutions
- No cleaning or maintenance effort required
- Low downtime

Technical data

Working widths [mm]	1024	1536	1920
Throughput up to [t/h]	2.5	3.8	5
Number of valves	128	192	240
Valve grid [mm]	8	8	8
Suitable grain sizes [mm]	2–20		
Power [max. KVA]	1.2		
Temperature range	+5°C to +40°C		
Protection class	IP 54		

Available options

Device division	Splitting of the sorting device for parallel sorting of two material streams
Connection set	Set consisting of infeed hopper, level sensors with speed control, and discharge chutes
VISUDESK visualization software	Web-based visualization of Sesotec systems via OPC UA

Fast, reliable service

Telephone support

Many questions and incidents can be resolved over the phone.
Our free telephone support is available daily from 6am-8pm, and on weekends from 8am-5pm.

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.

Would you like to learn more about our technical solutions for the plastic industry?

Then contact us directly. We will be happy to advise you.
You can reach us via:

+49 (0) 8554 308-0   www.sesotec.com

Imprint

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