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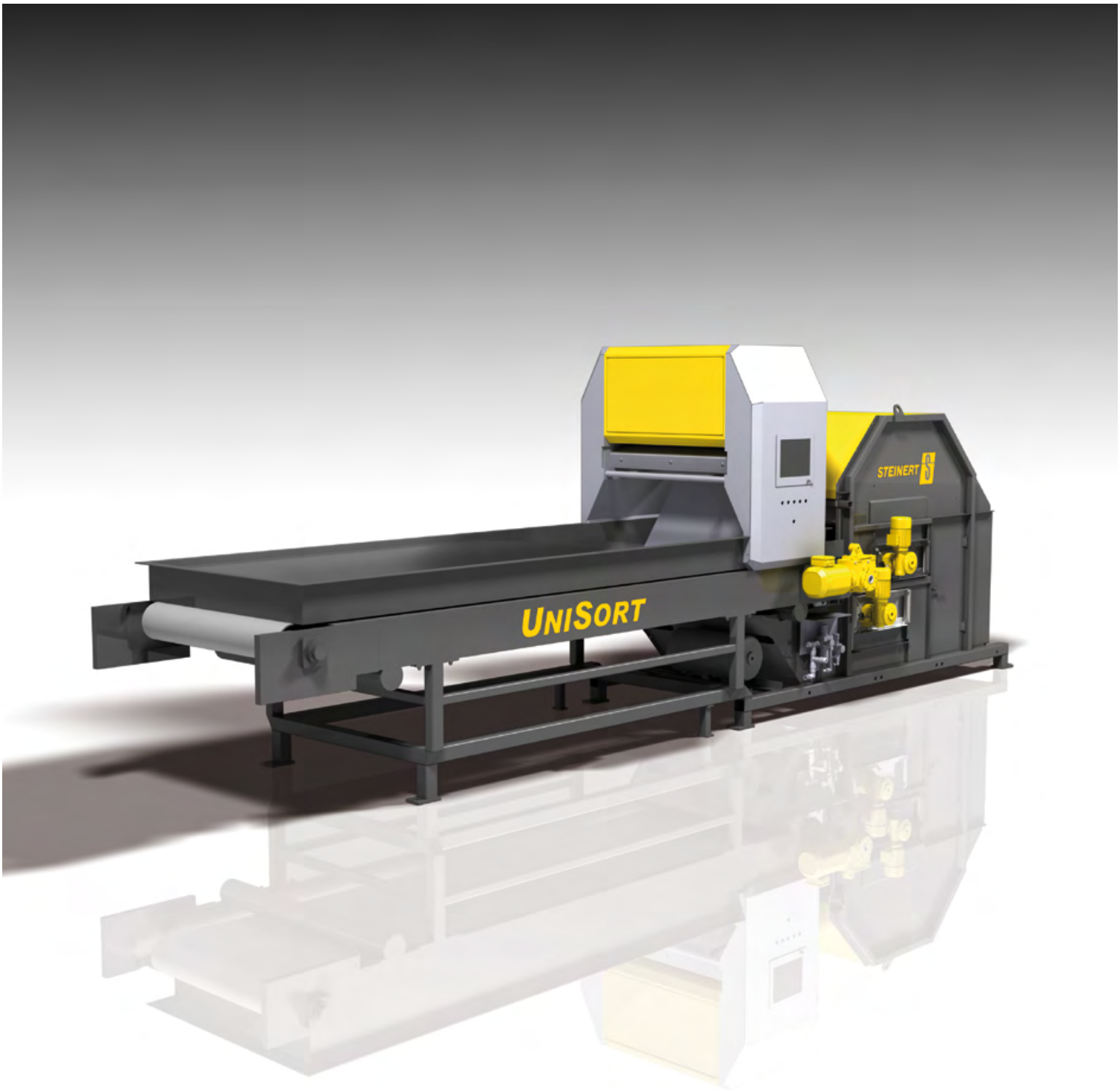


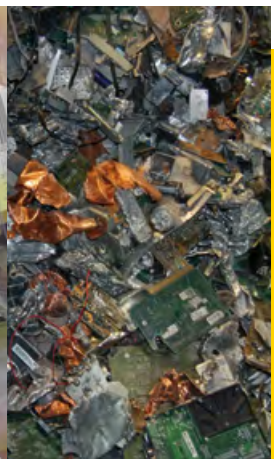

# UniSort PR

> with Hyper Spectral Imaging Technology

# HSI technology, the quantum leap in NIR sorting

The new generation of UniSort equipment is based on the latest NIR camera technology – Hyper Spectral Imaging (HSI). Its advantages are due to the combination of extremely high spatial and spectral resolution. As a result, small objects can also be reliably recognized. Complex sorting tasks are possible because the system records the complete spectral region for every spatial point, and utilizes mature, fast spectrometric algorithms, making this new generation of equipment extremely versatile.

High-performance, state-of-the-art hardware components enable the analytical processing of the flood of data from the spectroscopic measurements even at the highest possible spatial resolution. Furthermore, the spectral measurements are not simply compared with known patterns. The specially developed algorithms not only classify the standard plastics, but can also be adapted to tackle more difficult tasks.

The high-resolution NIR camera technology is suitable for an extremely wide range of applications. Whether it's sorting packaging, substitute fuels or plastics from electric or electronic scrap, the new system offers the right solution. In addition to special routines for image processing, a wide range of nozzle powers are also available, enabling optimal matching to the material to be sorted.

From the operator's point of view, the new generation units appear compact with clear and easy operation via touchscreen – easy to operate and maintain.

The compact units contain the sensor technology along with all of the power supply, control and operator modules, and are extremely easy to assemble. Nozzle bars, seperating vertex, belt monitoring and other connections such as an Ethernet port for a master control and remote maintenance are available as connector sockets.

The new UniSort PR is the step into a new generation of NIR sorting equipment which will increasingly come to replace scanning systems. Powerful, user-friendly, compact and flexible in application – these are the distinguishing features of the new systems.

**HSI's advantages over standard NIR technology**

All of the spectroscopic data recorded are measured simultaneously and processed in the high speed camera. The HSI technology uses the principle of a high-resolution line camera with a resolution of 320 pixels perpendicular to the belt direction.

Another advantage of the system is its optimal use of the incident light, as the system measures continuously rather than only recording one scan point at a time. This means that HSI technology requires significantly lower light levels and thus less energy.

The system's spatial resolution is approximately 6 x 6 mm and is thus conceived for fraction sizes of 10 mm and above. The HSI sensor is mounted above the conveyor belt in such a way that larger objects such as bulky components or canisters that are smaller than 500 mm and have found their way onto the belt can pass without problems.

The HSI sensor consists of three basic components. The heart of the system is the sensor module, which is located above the acceleration conveyor belt. The control electronics are located in the two side parts, which also serve as supports for the sensor unit.

One side part holds the control panel with touchscreen monitor, power supply and nozzle bar control and the interfaces for the master control system and remote maintenance.

The second side part, which forms the opposite side, holds the air conditioning unit.

The central part is dependent on the working width and contains the sensor technology, the power supply and the complete controller. The central part is available in nominal-widths of 1,000, 1,400 and 2,000 mm. This modular construction enables sorting widths of e.g. 2,800 mm with 2 x 1,400 mm to be realized. An additional switchgear cabinet is not necessary.

The UniSort PR sorter offers a selection of two nozzle bar grids. The standard grid size is suitable for fraction sizes in the range 50–280 mm and has a nozzle separation of 31 mm.

The grid dimension for the fine-grain fraction measures 12.5 mm and is suitable for targeted ejection of fraction sizes of 10 mm and greater. Nozzle grids of 16.5 mm and 22.5 mm are also available on request.

Data sheet UniSort PR

**NIR sensor for conveyor belt systems**

| | |
|---|---|
| Working widths: | 1,000, 1,400, 2,000, 2,400, 2,800 mm |
| Sensor width: | Working width + 250 mm |
| Sensor length: | 750 mm |
| Access: | Wing doors, 3-sided |
| Belt conveyor: | Rubber or PU belt |
| Distance from sensor to belt: | 500 mm |
| Belt speed: | 2.5–4.0 m/s |

**Sensor unit**

| | |
|---|---|
| NIR: | Hyper Spectral Imaging |
| Detections: | >27 million/s |

**Controller**

| | |
|---|---|
| Control unit: | Industry PC, Soft PLC |
| On-site operation: | Touchscreen |
| Remote control: | Potential-free contacts |

**Sorting**

| | |
|---|---|
| Ejection system: | High-speed valves, grid 31, 12,5 mm (F) Two or three-way sorting (PX) |

**Supply required**

| | |
|---|---|
| Power connection: | 3~50/60Hz 230/400V/N/PE |
| Remote diagnosis: | Internet |

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Technische Änderungen vorbehalten.

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