



BEUMER
technology in motion



Conveying technology Loading technology Palletising technology Packaging technology Sortation and distribution technology

BEUMER Sorter BS 55 ET-CD
Sortation and distribution technology
for a safe arrival. Worldwide.





**Outstanding features of the
BEUMER Sorter BS 55 ET-CD:**

- Closed-deck tray design
- Prevention of pinching between tilted and untilted trays
- Electric motor-driven tilting process with mechanical self-locking of the tilt element in the home position
- Set-up of the tray at any point in the sorter
- Power supply on demand, due to the contactless energy supply system

BEUMER Sorter BS 55 ET-CD
Baggage handling systems
that win you over.

- Modular design with field-proven mechanical components
- Reduced maintenance costs compared with both standard energy supply systems (on contact line basis) and traditional sorting systems
- Heavy-duty carriage connection with maintenance-free pivoting bearings
- Smooth, silent operation
- Quality assurance that comes from conforming to DIN ISO 9001 standards





State-of-the-art technology – powerful, gentle and safe.

The BEUMER Sorter BS 55 ET-CD with contactless energy supply is a standard sorter with motor-driven tilt elements and special trays for the distribution of baggage and heavy goods. The trays are configured as closed-deck systems that prevent items (straps, or tags, for example) from falling between the trays and into the sorter frame. The front surfaces of the sorter trays are formed in such a way that there are no gaps between tilted and untilted trays.

The thoughtful design of the BEUMER Sorter BS 55 ET-CD provides continuous safety for baggage with restricted transportability. The tilt elements are powered by the patented contactless energy supply system which operates on an inductive basis, ensuring minimal maintenance over the life of the sorter. A contactless infrared transmission system tracks the status of the tilt elements and provides information for the discharge of the baggage and set-up of the trays.

Modular design: BEUMER Sorter BS 55 ET-CD.

Drive unit

Minimal wear and tear as well as reduced noise levels are assured by the contactless linear motors propelling the carriages. The forward movement is generated directly at the carriage by the linear motor drive which consists of two primary parts placed one in front of the other. These primary parts enclose the massive secondary part. Thanks to this design, the interfering compressive and tensile forces are neutralized. Power loss, the need for frequent adjustments and additional wear on the carrying wheels – typical for single-coil, horizontal LIM arrangements – are eliminated.

Brakes

In normal operation, deceleration and stopping are effected by regenerative braking of the linear motor drive. In addition, one or more mechanical blocking brakes with adjustable braking force can be mounted to the frame (see adjacent photo).

Sorter frame and rails

The frame profiles with integrated track rails are extruded from anodised aluminium. Safety covers, photocells and other components can be conveniently attached at any position along the frame.

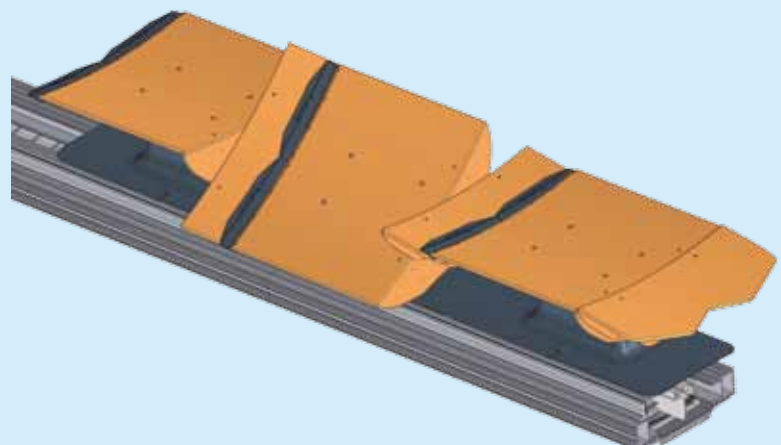
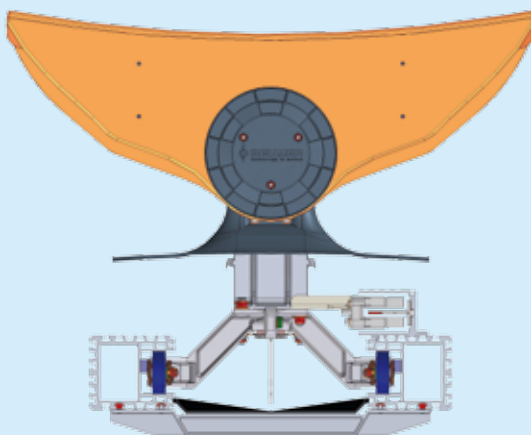
Carriage

Low-maintenance carriages made of die-cast aluminium are assembled to form a continuous, closed loop. The carrying wheels and the lateral guide rollers are journal bearings with a polyurethane lagging (lubricated for life). The modules of the carriage are screw-fastened for simple assembly and disassembly. The individual carriages are connected by high-strength bolts and pivoting bearings.



E-Tray tilt element

The E-Tray tilt element is motor-driven without mechanical activation. Accordingly, each tilt element is equipped with a DC gear box motor which carries out the tilting and set-up of the tray via a patented sliding block guide plate. A key characteristic of this drive concept is the resulting self-locking of the tray in the home position which absorbs and eliminates the stressing forces during the induction.





BEUMER Sorter BS 55 ET-CD

**Contactless energy supply for improved
cost-efficiency.**





**Power and data transmission:
No contact – no wear and tear.**

Contactless energy supply system

An outstanding feature of the BEUMER Sorter BS 55 ET-CD is its unique system for contactless energy supply. Conventionally, electrical power was transmitted to moving equipment by maintaining a continuous connection between the moving collector device and the static passive supply line, often called a contact line.

The transfer or production of electrical energy using contact lines is accompanied by friction, resulting in high wear on the current collectors along with increased maintenance costs. The contactless energy supply and functionality of the BEUMER Sorter BS 55 ET-CD helps avoid these types of material costs and, ultimately, reduces environmental impact.

By converting standard electrical power into a medium frequency, the electrical energy can be transmitted from the static power supply to the flying transformer, crossing an air gap of 5 mm clearance.

Due to the selected frequency of the current, a very high transmission efficiency of up to 96% is realised. The medium frequency current transmitted to the BEUMER Sorter BS 55 ET-CD is converted to DC power by the MF/DC converter. This converter is equipped with an intelligent power output to control the DC motor of the E-Tray.

Contactless data transmission

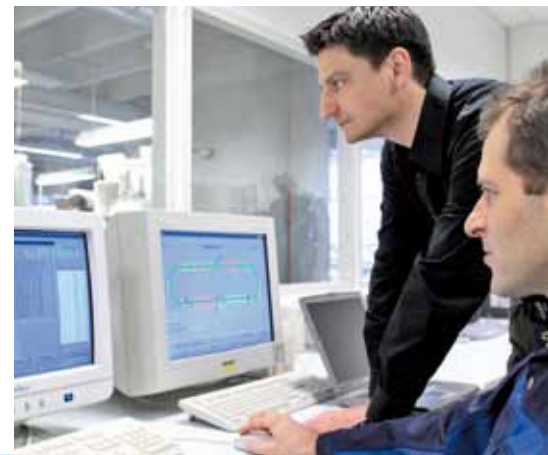
Stationary infrared (IR) data transmitters are mounted along the sorter loop at locations where goods are discharged from the E-Tray unit.

Each E-Tray unit is equipped with a control unit consisting of an IR data transceiver and a microprocessor. The control unit processes the control commands captured by the IR data transceiver and controls the tilting speed of the E-Tray by means of the MF/DC converter. It also monitors the status of each E-Tray.

A stationary check module equipped with an IR data transceiver is installed strategically at the sorter loop, usually before the induction group. This module receives status messages from each E-Tray and forwards them to the control unit.

BEUMER Sorter Control (BSC)

The control of all machine-relevant functions relies on a robust, off-the-shelf programmable logic controller (PLC). This real-time system, supported worldwide, executes control commands for all the mechanical elements of the sorter and its peripherals, such as induction



units, barcode reading devices/scanners and destinations. The PLC also processes signals from all sensors and watchdog units relating to the sorter.

The BSC system comprises decentralized input/output (I/O) devices communicating by means of a standard PROFIBUS/AS-i network.



BEUMER Sorter BS 55 ET-CD
Intelligent system solutions for gentle transport.





BEUMER Sortation System (BeSS)

The BeSS is a PC-based Windows-Server attending to the upper level control of the sorting process.

Its major tasks are:

- to communicate with the higher-level control station, often called SCADA, via a multitude of available network standards and protocols;
- to communicate with the higher-level baggage control computer for the allocation, opening and closing of destinations, as well as for sorting according to IATA code;
- to provide the human-machine interface by means of a colour graphic display and a keyboard, securely protected by a multi-level password system. The operator interface may be further enhanced by adding industrial grade components, e.g., touch panels, computer mice or other input devices;
- to provide extensive data logging tools for statistics, maintenance and error corrections;
- to serve as the sort allocation computer for the BSC over the local area network (a large number of freely selectable sorting tables can be downloaded, edited and stored on the BeSS);
- to ensure archiving of all system operations for reporting integrity in the event of communication interruptions with the host.

Merits of the BEUMER Sorter BS 55 ET-CD

As with all products in the BEUMER family of sortation and distribution systems, the discharge sequence of the BEUMER Sorter BS 55 ET-CD is fully controlled, safeguarding the gentle handling of baggage. Since the discharge sequence is initiated without external mechanical devices, destinations can be placed in sorter areas that were conventionally inaccessible, e.g., curve areas. In addition, the motor-driven tilting action is nearly noiseless. Thanks to the contactless data and power transmission, the BEUMER Sorter BS 55 ET-CD incorporates the utmost in flexibility.

By individually adjusting the start position of each discharge sequence, higher filling rates can be achieved at the destinations. Thanks to the extensive use of proven technologies and reliable components, the BEUMER Sorter BS 55 ET-CD provides high reliability in operation.

Another quality indicator is that the maintenance expenses are significantly lower compared to conventional sorters. The unique contactless energy supply system keeps operating costs at a minimum – and the modular design concept means

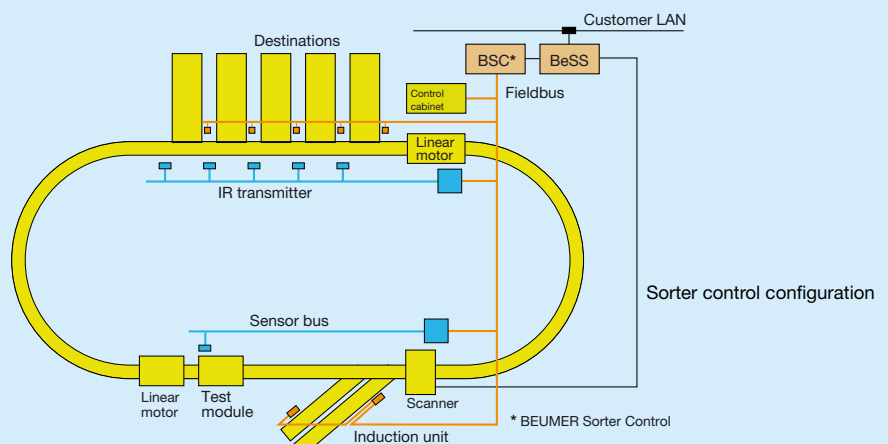
that systems can be configured to ideally suit your building space without having to compromise system performance.

Prospects

Logistics solutions require detailed attention to mechanical design, system



implementation, and sustainability – for today, and tomorrow. BEUMER embraces these challenges by continuing to provide a well-balanced portfolio of products and solutions, while expanding its worldwide presence and maintaining its established tradition of excellence and integrity.



Example of the technical layout of an E-Tray Sorter control configuration



BEUMER
technology in motion

BEUMER – your professional partner.

For many years BEUMER has delivered sortation and distribution systems to businesses all over the world. We provide customised solutions from stand-alone machines to centralised, software-controlled material handling systems. Our customers appreciate our proven, well-engineered technology as much as the reliability of our project management teams.

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BEUMER reserves the right to make modifications that serve technical progress.