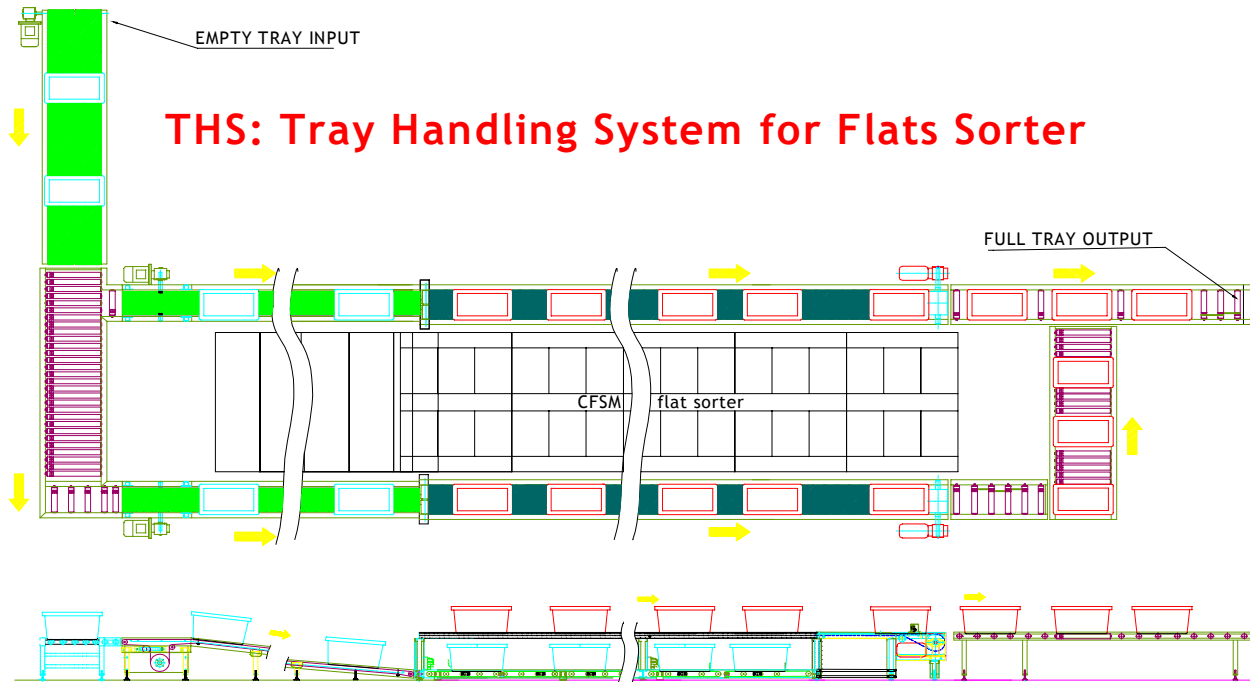


**TECHNICAL REFERENCE SHEET**

**THS - Tray Handling System for Flats Sorter**



**CUSTOMER: ELSAG**

**OPERATION AND MAIN FEATURES**

The Sorter for Flats (ELSAG – CFSM) basically consists of a two-levels, two sides accessible framework of cells where postal items are discharged by destination into trays.



Operators have to handle empty and full trays (i.e. holding sorted flats) in and out of cells, on both sides of the sorter.

THS helps the operators by properly moving around and buffering both empty trays inducted at the input station and full trays extracted from cells and to be carried over to the output station.

THS has been fully designed and built by SAET, starting with the analysis of flows and requirements until the detailed design of mechanics, electrics, controls and software interface to the Host.

THS is mainly based on a PLC controlled system of roller and belt conveyors placed around the sorter, with the following main features:

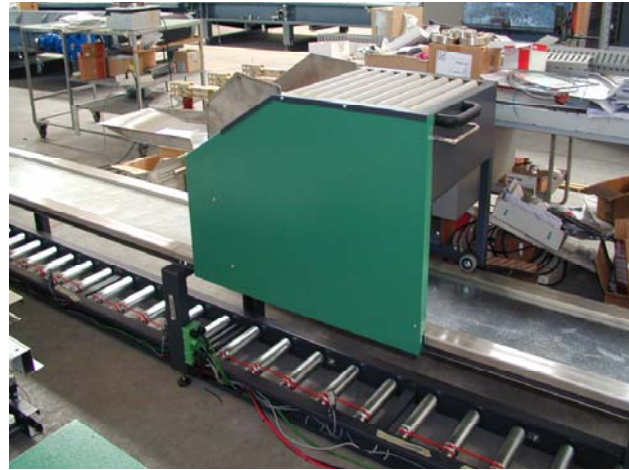
- single empty trays input station, with diverting section and automatic balancing of trays to be fed into the sorter side conveyors,
- contactlessly buffering of empty trays in several pre-defined zones along the side rollerconveyors, to be within easy reach to the operators feeding them into cells,
- suitably designed trolleys (see the picture) to help the operators when extracting full trays out of upper level cells,
- transport of full trays on separate conveyors along sorter sides with merging section at the output station.

Special attention has been paid during design phase to guarantee:

- throughput up to 1.200 trays /hr,
- balancing of empty trays to be fed into each side conveyor, accordingly to the empties picked up,
- contactless buffering of empty trays along the sorter sides to make easier their picking by operators, with automatic refilling of vacancies,
- minimum height of rollerconveyors, to allow for handling of empty and full trays on separate conveyors, one upon the other, on each sorter side.

Moreover, the following basic design concepts made possible to fully comply with the required reliability and low servicing targets:

- distributed logic PLC based control system, to reduce cabling and to simplify testing and troubleshooting,
- highly reliable electromechanical and electronic components, without any use of pneumatics, to keep low the servicing needs (preventive and corrective),
- rollerconveyors using motor-driven rollers, to keep as much as possible low their height and thus allowing for empty and full trays separate conveyors, one upon the other, on each sorter side.




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## MAIN SUBASSEMBLIES

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- Empty trays input station, with automatic diverting section to balance trays to be fed and contactlessly buffered along each sorter side conveyor,
- full trays conveyors on each sorter side with automatic merging section at the output station,
- trolleys to help extraction of full trays from upper level cells: 2 hand operated trolleys on each sorter side (movable all along the trays extraction section),
- operator command and control panel,
- emergency pushbuttons and operation lights,
- distributed logic, PLC based, control system with operator guide panel, dataexchange and diagnostic interface to the Host.

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## TECNOLOGIES

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- distributed logic, PLC based control system,
- fieldbus IP67 I/O modules (2xDI + 2xDO) and direct command of 24 Vcc motor-driven rollers,
- dataexchange and diagnostic interface to the Host,
- 24Vcc motor-driven rollers to handle both empty and full trays,
- inverter based speed control system for beltconveyors.



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