References

ENGMATEC

Handling & Marking

Boardhandling

- Conveyors
- Loader / Unloader
- Buffers
- Turn Units
- Flip Units
- Lift Stations
- Shuttle Units
- Gate Stations

Marking- & Recognizing-Units

- Laser Marking
- Inkjet Marking
- Labeling
- 1D/2D-Code-Scanning

Assembly Automation

Measuring and test equipment

Temperature testing systems

Single part production

ENGMATEC GmbH
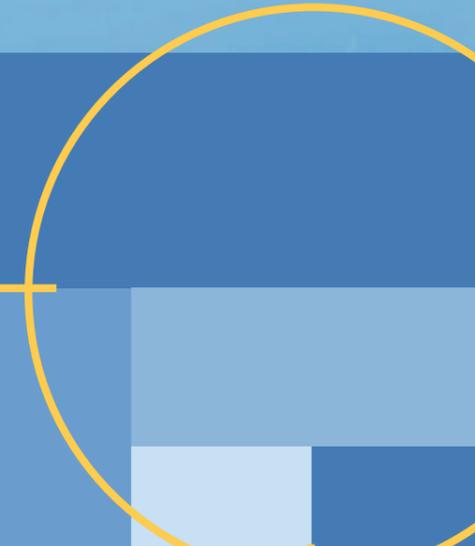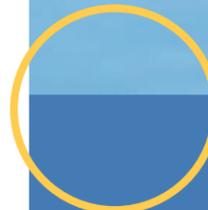
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molex

mCD ELEKTRONIK GMBH

HIRSCHMANN

FLEXTRONICS

MARQUARDT

Honeywell

Boardhandling - Identification - Marking

CONVEYOR	TURN	FLIP	LIFT	SHUTTLE	BUFFER

UNLOADER	LOADER	MARKER	LASER	LABELING	SCANNER

Boardhandling
- Turn units
- Flip units
- Shuttle units
- Conveyors
- Gate stations

Loading / Unloading
- Magazine loader
- Magazine unloader
- Bare board stacker
- Bare board destacker
- Combined Loader/Unloader

Buffering
- Changeable magazine
- Fixed magazine
- Without magazine
- FiFo- / LiFo- Buffer

Marking / Recognizing
- Ink jet marking
- Laser marking
- Labeling
- 1D/2D-Code-Scanning

Product range

ENGMATEC offers an extensive standard program of efficient and proven systems.

The elaborated modular system consists of various handling and transport systems for printed circuit boards, soldering frames and workpiece carriers.
All components are coordinated and can be combined with each other and with different production systems.

An intelligent control conception and standardized interfaces guarantee a safe function in each system configuration without any change of control.

Because of the high flexibility of the standard modules economical adjustments can easily be realized for special customer requirements.

Application areas

- ■ SMD lines
- ■ Assembly lines
- ■ Test lines

Depending upon customer specific requirement the transportation widths, magazine types and interfaces can be arranged. Components such as soldering pro-cesses or vision systems can be integrated as well.

Extensive services complete the product range:
Additionally to the installation of the systems our customers can rely on training, support during maintenance, repair service and world-wide spare part supply.

General characteristics

- ■ Smart and compact design
- ■ Highest safety standards
- ■ Consistently applied unified design
- ■ High operator convenience
- ■ Construction in accordance with CE and ESD
- ■ Communications interface as required or multi-interface possible
- ■ Powder-coated surfaces
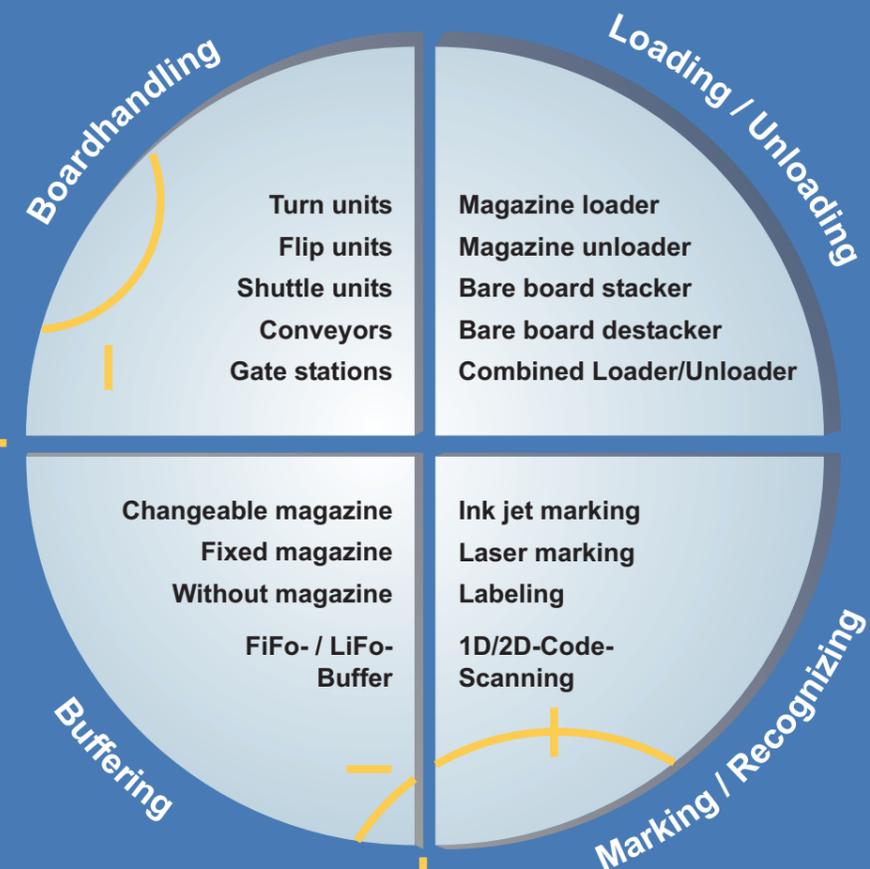- ■ Manual or automatic width adjustment

Type series

The board handling portfolio is divided into two series for different PCB dimensions. Thus crucial advantages result regarding economy and flexibility.

M-series: Length 100-330mm, Width 50-260mm
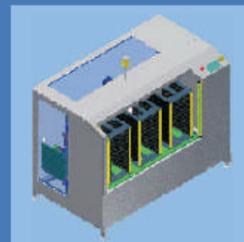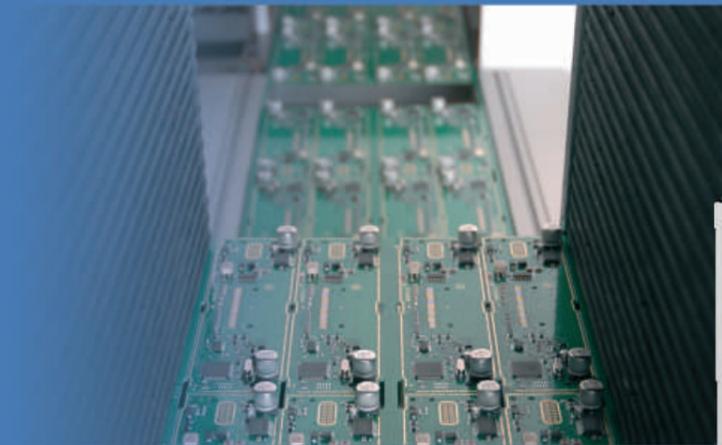L-series: Length 100-500mm, Width 50-500mm

The M-series is suitable for smaller PCBs and therefore particularly space-saving and economical.

The L-series for printed circuit boards to 500 x 500 mm covers all usual sizes.

Loading / Unloading Stations

Buffer Stations

Loader and Unloader with batch processing

For the treatment of bare PCBs mainly two machine types are suitable: Loading Stations for automatic loading from stack and Unloading Stations for automatic output of PCBs to a stack. Most frequently these are used in "offline marking islands" at the beginning of the production processes.

■ Separation by mechanical gripper

■ Separation by vacuum gripper

■ Mounting of suction cups on both sides, no retooling necessary

Loader and Unloader with magazines

Depending upon cycle time and number of items the magazine loader/unloader can be equipped with one or more PCB magazines.

■ Stations with 1, 2, 3 or more magazines

■ Manual or automatic magazine change

■ 90° magazine arrangement also possible

■ Pass/fail sorting function

■ Combined Loader/Unloader for operation of stand-alone stations from only one side

■ Magazine filling features many parameters

Magazine Buffer

According to the LIFO- / FIFO-method in case of a shutdown PCBs can be stored in a magazine with the magazine buffers and after end of the shutdown they can be pushed out and transferred.

The buffer can be expanded by change of the magazine. The use as loader/unloader or as selection station is possible very easily.

■ Buffering according to FIFO-method

■ Buffering according to LIFO-method

■ Buffer with 1 magazine, manual magazine change

■ Buffer with several magazines, automatic magazine change

Process buffers

Process buffers can adjust irregular cycle times and thus improve the productivity of SMD lines.
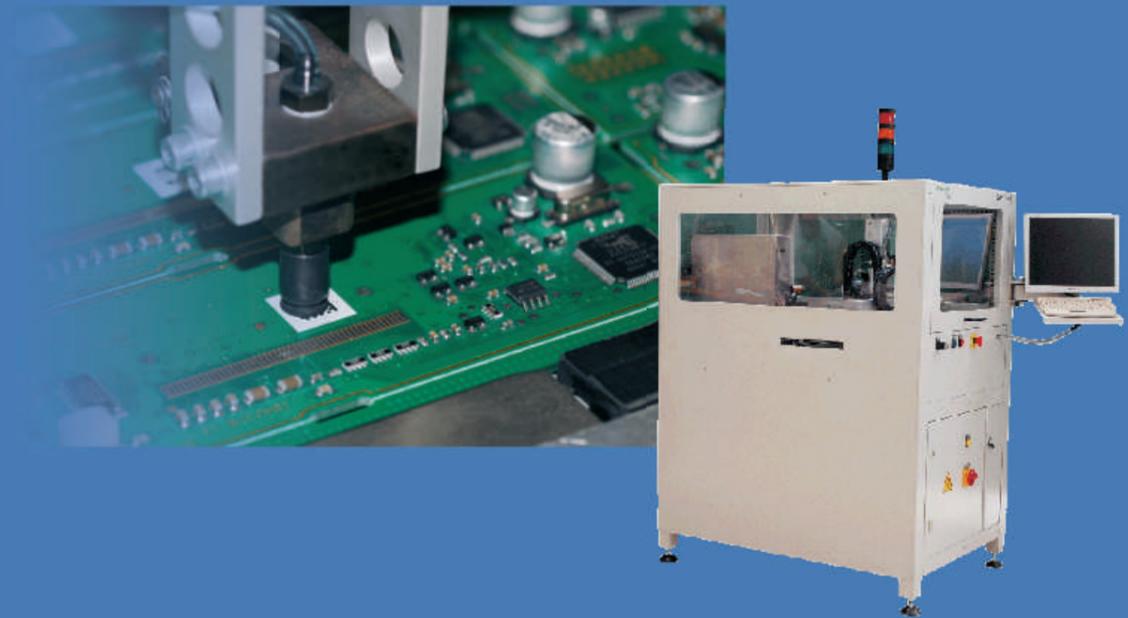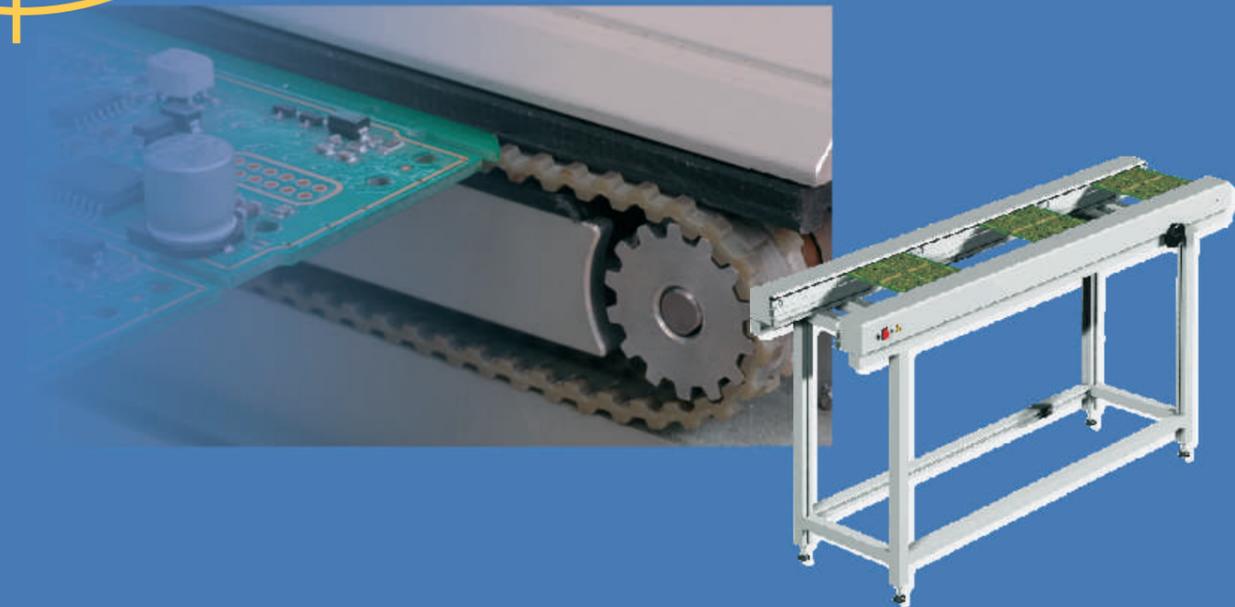
Further functions are: Good/bad sorting, cooling mode after heating processes, LIFO- or FIFO-buffer mode and prioritization of time-critical processes.

■ LIFO-buffer after soldering machine

■ LIFO-FIFO-buffer for the storing of 20 or 30 PCBs

■ Buffer with adjustable period for warming up / cooling / gas emission

Conveyors, Handling Systems

Marking- and Recognizing-Units

Typical handling functions are transporting and shifting of products as well as the change of spatial orientation in vertical and horizontal direction. As connection of different components of a production line all stations fulfill an important function.

Conveyors

- ■ Transport with toothed belts, flat belts, pin chain, roller chain
- ■ Any quantity of segments
- ■ Standard length 400mm to 2.400mm
- ■ Design also as dual lane
- ■ 1, 2 or 3 transport layer possible
- ■ Additional standard functions: e.g. inspection function, lifting unit, workstation equipment

Handling Systems

- ■ Turn units
  - ▬ Entry / exit at 90°, 180° and 270° realizable
- ■ Flip units
  - ▬ Flipping of the PCB around 180°
- ■ Lift units
  - ▬ Lift stations with 2 or 3 lift positions
- ■ Traverser
  - ▬ Configurable up to 4 entries/exits
- ■ Gate stations
  - ▬ Conveyor, telescope and portal gates

Identification and Marking

Marking stations are mainly used for marking PCBs and assemblies.

Depending upon requirement text, bar code, DATA matrix code or graphics are contents of the inscription.

Size and position of the marking can be defined fast and flexibly with the proven ENGMATEC software. The easy operation is of advantage especially for the marking of multiple printed panels.

Control reading of the marked codes (by 100%) is possible without loss of time via image processing system or scanner directly after the marking.

The integrated data base stores all relevant data for the complete traceability of the products.

Marking Units

- ■ Laser Marking
  - ▬ Laser System CO_2 or YAG
- ■ Inkjet Marking
  - ▬ Different ink sorts
  - ▬ Marking in one or user-defined direction
- ■ Labeling
  - ▬ Label position is fix or freely adjustable
  - ▬ Air ionization in the application area

Read-in units for bar code and DMC recognition

- ■ Scanner Unit
  - ▬ firm or adjustable scanner position
- ■ Automatic Recognizing-Units
  - ▬ Scanner on axis system
  - ▬ Wide-field camera system