

ENGINEERING
TOMORROW'S
PRODUCTION



LightAssembly: Built for the Highest Quality Requirements

Our platform for demanding and efficient production solutions

Manz *LightAssembly* – Excellent Automation Concepts for Growth Industries

Our modular and fully automated assembly systems is built on our decades of experience technological know-how in the fields of robotics, automation, image processing as well as inspection systems and laser technology.



Manz AG

- Established in 1987
- Headquarters in Reutlingen, Germany
- Other branches in Slovakia, Hungary, Italy, China, Taiwan, the US and India
- Approx. 1,400 employees worldwide, including around 500 engineers

Core Technologies

- Automation
- Assembly
- Laser
- Inspection Systems
- Digital Printing

High-Precision Assembly Processes – Our Whole Know-How for You!

Standardized machine components enable excellent cost-benefit relationship with short delivery times. At the same time, the modular structure of our systems easy reuse across multiple end product generations.

Rising labor costs, a lack of workers, increasing complexity of assembly processes and increasing requirements for the quality of the end products: the electronics industry finds itself confronted with ever greater challenges in mass production.

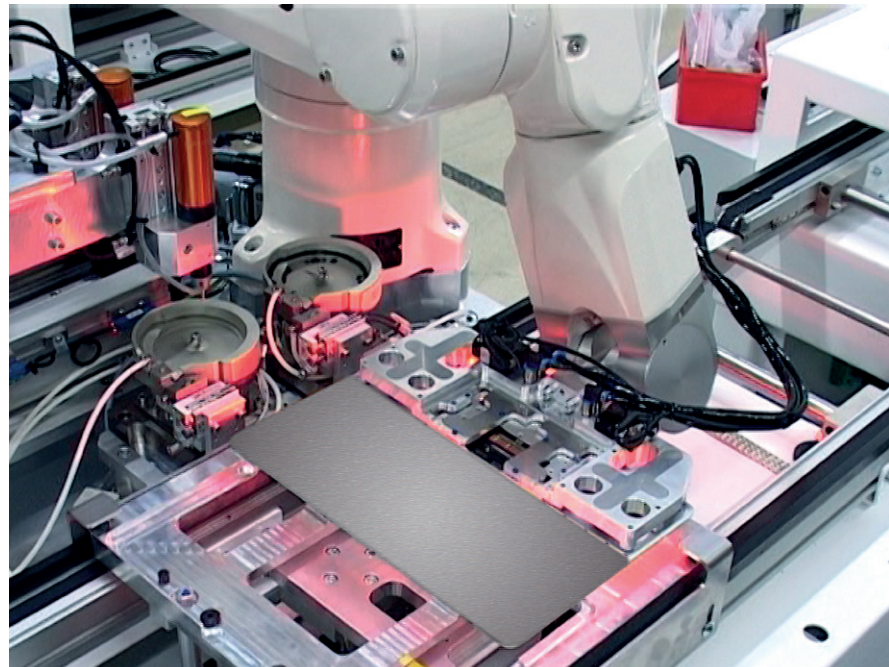
Partially or fully automated assembly lines are at present a first step for meeting some of these challenges. Nevertheless, the individual pieces of equipment of an assembly line, which often come from different manufacturers, are not sufficiently linked or possibly not linked at all.

Fully integrated & automated

The Manz *LightAssembly* line offers the ideal solution for meeting the increasing demands on product and manufacturing processes. From the incoming goods inspection via assembly and quality control to packaging, the assembly line can be individually configured and scaled according to the modular principle. This leads to a measurable improvement of the quality of the end products while at the same time lowering production costs. As a result of decades of experience in automation, metrology and process technology, Manz is able to develop highly precise processes.

The standardized modules of the Manz *LightAssembly* line make a fast, flexible delivery and commissioning possible. Due to the modular design, the line can be quickly adapted to modified processes and thus, for example, continue to be used even across new product generations.

We accompany you from the initial idea to the final production process and are at your side during planning, projecting, construction and installation of your production line. In addition, we support you with our comprehensive know-how through the setup and commissioning of the system, with user training, remote maintenance and after-sales service.



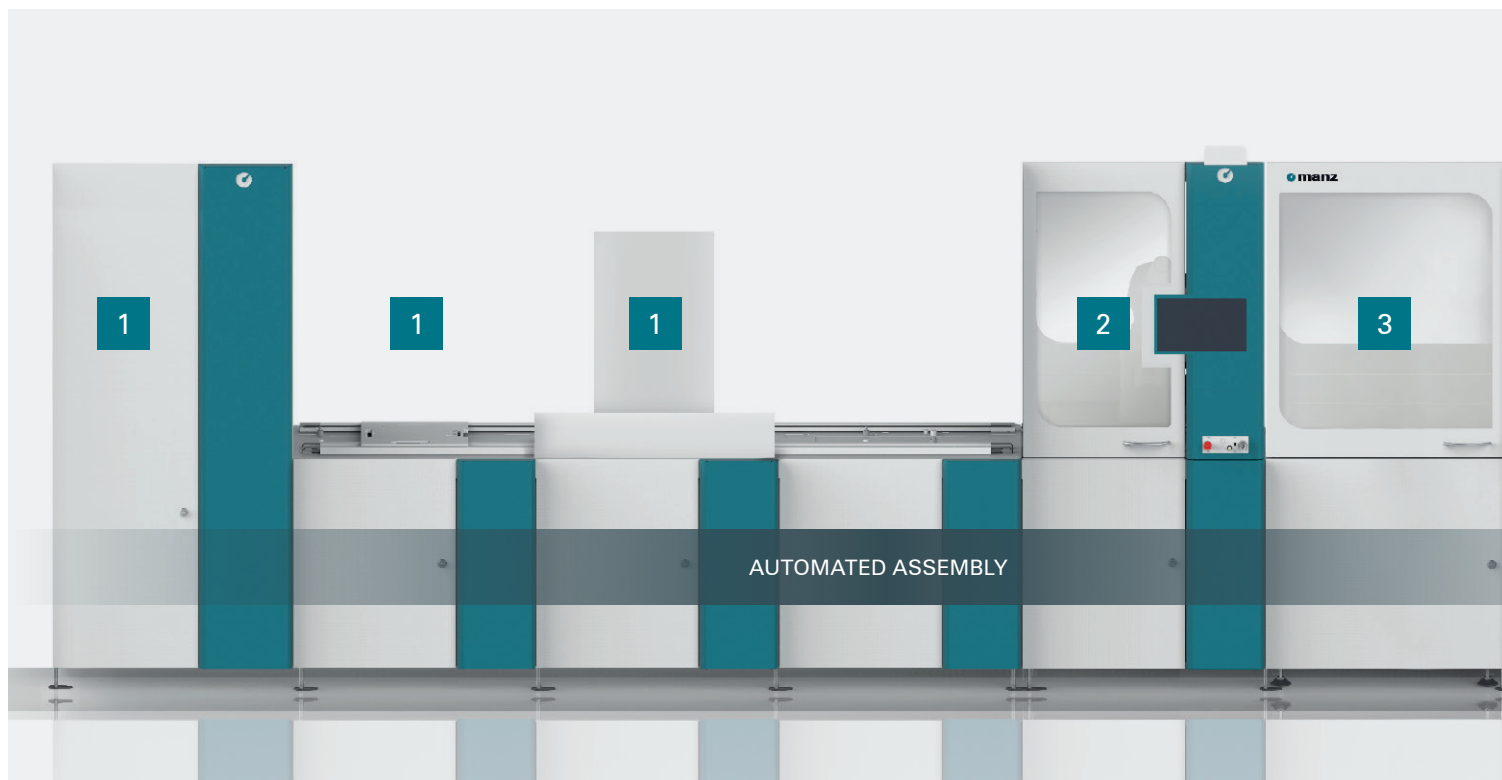
From the individual part to the finished product: with the modular constructed Manz *LightAssembly* platform, various assembly and process steps can be simply and reliably automated.

Areas of Application:

- Automation
- Matching & sorting
- Assembly tasks & processes
- Quality control

We Think of Everything: Modular, Maximum Flexibility & Individually Adaptable

Modularly built and flexible to the maximum degree: the standard model, consisting of the loading and unloading units, conveyor, lift and process station, can be individually equipped, retrofitted and upgraded.



1 Transport

- Loading/unloading station
- Conveyor technology from standard components
- Integrated carrier return track (optional)
- Lift unit with dynamic carrier buffering function (optional)
- LiFo inline buffer (carrier)
- Carrier bypassing feature
- Flexible layout design due to compact module footprint
- Linear, circular and/or segmented system layout

2 Matching & Sorting

- Best fit matching: optical metrology and classification in combination with selective assembly algorithms for determining the parts best suited to each other
- unmixed deposition of the components in trays

3 Assembly & Process

- Joining (screwing, ultrasonic welding, laser welding, soldering, press-fit e.g.)
- Application of 1c/2c materials
- Automated preparation and assembly of flat ribbon cables
- Assembly of electronic parts and assemblies
- Ablation and surface cleaning processes
- SCARA, 6-axis robots, 1 to 4-axis handling systems
- Optimized manual workplaces



4 Data Monitoring

- Extensive diagnostic & logging options for monitoring and diagnosis of machine function
- Inspection & quality control (CCD camera, moving line scan, 3D measurement, measurement of gap dimension and flatness)
- Automated final inspections & documentation (e.g. electrical & optical measurements)

5 Material Supply

- Material supply via Tray Feeder, Bowl Feeder and/or Blister Feeder
- Manual loading and unloading
- Automated loading and unloading via pallet, tray and blister feeders
- Autonomous operation of the system for 30 to 120 minutes (with tray feeder or blister feeder)

Optional Equipment

- Connection to customer-specific MES
- Component categorization by label or laser coding
- Integrated production logistics using AGV/FTS for Euro pallets and trays

One Base, Many Options: We Create the Best Solution for Each Customer

We implement your wishes and grow with you and your requirements. The modular design ensures maximum scalability and changeability of the system – even during the production



Manz *LightAssembly* for assembly
The Stand-Alone Version

Process modules for manual loading and unloading



Manz *LightAssembly* for assembly
The Basic Model

Loading and unloading unit, transport conveyor, two lifts and one process station



Manz *LightAssembly* for testing and assembly
One Expansion Option

Loading and unloading unit, transport conveyor, two lifts, multiple process stations and stations for parts matching, inspection, labeling and quality assurance. Adaptable to the needs of the specific customer.

Technical Data

Cycle times	4 to 120 seconds
Component weight	< 0.5 kg, < 4 kg, < 20 kg up to 60 kg
Handling systems	Cartesian axis systems, 3D Lambda, SCARA, 6-axis robot, special kinematic systems
ESD (electrostatic discharge)	Optional
Product tracking	Full product tracking via data matrix, barcode oder serial number, placed on the product
Carrier tracking	RFID, barcode
Control	Beckhoff
Monitoring	Comprehensive logging of product and machine related data
MES (manufacturing execution system)	Interface to customer-specific MES systems (optional)
HMI (touchscreen)	Standard: front side, option: back side

Your Benefits at a Glance

Optimized assembly with the Manz *LightAssembly* line: maximum throughput and quality from the first minute of production.



With the *LightAssembly* platform, highly functional profitable production, complex assembly and/or process tasks can be solved simply, efficiently and ideally coordinated with each other.

Whether it's a stand-alone variant or an integrated line: the modular one construction opens up many possibilities and almost unlimited scaling options.

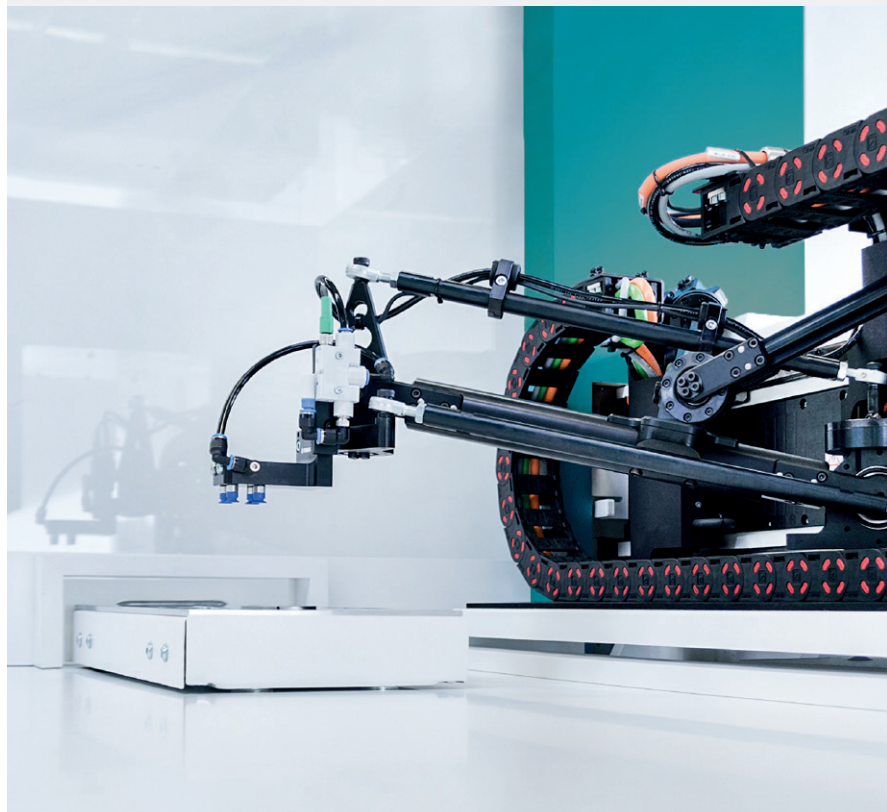
Processes can be adapted quickly to new tasks, where existing modules can be reused.

As a result, the Manz *LightAssembly* line can be used across several product generations and thus contribute to the profitability of production. The compact and space-saving design of the standardized modules enables flexible, location-independent use.

The Manz *LightAssembly* can be connected to a customized Manufacturing Execution System (MES), and the data of each component can be stored for quality control – an important prerequisite for "Industry 4.0".

Through our global presence, we can equally support all of our customers' operating sites. In this way, identical and high-quality production results can be realized worldwide.

- ✓ High quality and throughput
- ✓ Maximum flexibility
- ✓ Fast availability
- ✓ High level of integration
- ✓ Stable and profitable production



Our Locations



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