



Accelerate Smart Manufacturing and Process Optimization with CIM

Manz continues to place a clear emphasis on R&D activities in high process quality and effective cost to help customers maximizing production efficiency by building reliable production processes.



Manz dedicates itself to the manufacturing innovations of wet chemistry to offer customized and integrated production solutions

As one of the innovative PCB equipment providers, Manz has built wet chemistry, electro-plating and automation systems. With integrated software planning and hardware design innovations, Manz further offers "one-stop solution" to link with software development and production line integration. This will make our customers to further improve production processes and quality control for salifying the rising demand of modern electronics.

The strengths of one stop solution:

- Integrate with big data analytics to reduce production risks, labor costs and increase production efficiency.
- Optimize floor space usage and manual testing process to enhance human safety.
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- Achieve low energy consumption to reduce operational costs and the environmental impact.



Our competitive advantages:

- Sole equipment & fully integrated production solutions
- Production process simulation & big data analytics planning
- Join development for process design and best-fit production solutions

Our Locations



Manz AG 10/2022

ENGINEERING
TOMORROW'S
PRODUCTION

ENGINEERING
TOMORROW'S
PRODUCTION



Advanced production solutions of IC Substrates

High efficiency equipment of modern electronic interconnect systems

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Manz AG — Cross-Domain Innovation to Promote Industrial Upgrading

Manz develops and builds innovative and efficient production solutions to create new industrial standards in the emerging sectors. Our claim **“engineering tomorrow’s production”** underscores our aspiration as an innovation driver for future markets.

As a leading manufacturer of wet chemical processing equipment for the production of PCBs more than 30 years, Manz enters the production solutions of IC substrate sectors. Our diversified systems include both stand-alone tools and fully integrated solutions for the production of circuit patterns on substrates and advanced electronic interconnect systems.

Our equipment enables manufacturing process optimization and productivity improvement

Manz provides customers with dedicated solutions and services, which make a significant contribution to their success through faster and more economical ways to achieve mass production goals and enable a faster time-to-market strategy.

Focusing on critical processes of IC substrates, our equipment meets the criteria of manufacturers for modern electronics

With the high demands of AIoT, 5G, and smart vehicles, the challenging advanced interconnect applications of IC substrates require high-performance production solutions.

Manz offerings are not only providing wet chemistry processes or stand-alone machinery but also delivering one-stop solutions to drive production efficiency and superb quality by linking with software and integrated hardware expertise.

Our production solutions provide customers an enormous competitive advantage to equip fancy electronics with the features of slimmer, lighter and better performance in the market.



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

Integrated Total Production Solutions

Manz offers wet chemistry solutions for pre-treatment, developing, etching, stripping, brown oxide, DSM/PTH, imaging, various surface treatment and automation. With maximized efficiency and stability of equipment, Manz has gained customer trust and confidence.

The strength of Manz advanced IC substrate production solutions:

✓ **High process stability and high manufacturing yield**

Use solid components to fit requirements of high reliability and safety standards. Collaborate with customers to do production optimization and increase yields

✓ **High integration of hardware and software for rapid production**

Manz provides solutions with integrated hardware and software to link with CIM for process optimization and smart database creation.

✓ **Automation enables production cost reduction**

By providing high efficiency substrate handling systems and robotics plus the expertise in IC substrate sector, Manz offers a complete range of automation, production lines and Total Fab Solution



Horizontal Oxide Replacement Process

- Minimum 5 times of thermal shock test
- Uniformed color and oxidization layer bounding force $\geq 3.0 \text{ lb / in}^2$
- High conveying stability with deviation at $\pm 10 \text{ mm}$ and drag out $\leq 10 \text{ cc / m}^2$

Horizontal / Vertical Developing Process

- Excellent cleaning ability, no roller mark, water mark and SCUM residual
- High conveying stability with deviation at $\pm 10 \text{ mm}$ and drag out $\leq 10 \text{ cc / m}^2$
- Equipped with width control device

Diverse Technologies Lead to Success with Customer Oriented Production Solution

With technologies and customer services, we see ourselves as a development partner who works out solutions together with our customers. We therefore support you in numerous stages of development and design from delivery to after sales services.

Horizontal Developing, Etching, Stripping Process

- Etch factor ≥ 3.5 , great uniformity and patterning
- High conveying stability with deviation at $\pm 10 \text{ mm}$, squeegee roller residue $\leq 10 \text{ cc/m}^2$
- Small-volume tank design for the rinsing process to increase the tank turnover rate by 50 %.

Chemical Analyzer

- Continuity chemicals testing to improve yields with high testing speed of 10 seconds per contact
- No reagents required to save production cost
- Wide range temperature for testing chemicals from 10 to 80 °C
- Simultaneous measurement for multiple ingredients with real time monitoring

Horizontal DSM & PTH Process

- Excellent Mn⁶⁺ activation: Mn⁶⁺ content < 25 g/l
- Excellent chemical copper deposition speed and thickness with at least Grade 9 backlight.
- High conveying stability with deviation at $\pm 10 \text{ mm}$ (equipped with width control device)
- Small-volume tank design to increase the tank turnover rate by 50 % and drag out $\leq 10 \text{ cc/m}^2$.

Vertical Automation Process

- Uptime up to 99.8 %
- Exclusive contact-free tooling conveyor system, achieving high productivity yield
- Auto loader and unloader with I/O ports for flexible integration with equipment and achieving one-stop production

	Imaging						Surface Treatment			Metallization		Patterning			Automation			
	Inner/Outer Pretreatment	Solder Mask Pre-process	Solder Mask Developing	Outer Layer Developing	MSAP Developing	Brown Oxide	SES Process	Finished Cleaning	OSP Process	DSM & PTH Process	Flash Plating	Copper Reduction	Fast Etching	MSAP Stripping	Inner / Outer Layer Stripping	DES Process	Auto Loader / Un-loader Pretreatment	Robotic
Flip Chip-Chip Scale Package (FCCSP)																		
Horizontal Conveyor	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Horizontal contactless	■	■	■	■	■	■	■	■	■	■	—	■	■	■	■	■	■	■
Vertical Jig-Free	—	—	—	—	■	—	—	—	—	—	—	—	—	■	—	—	■	■