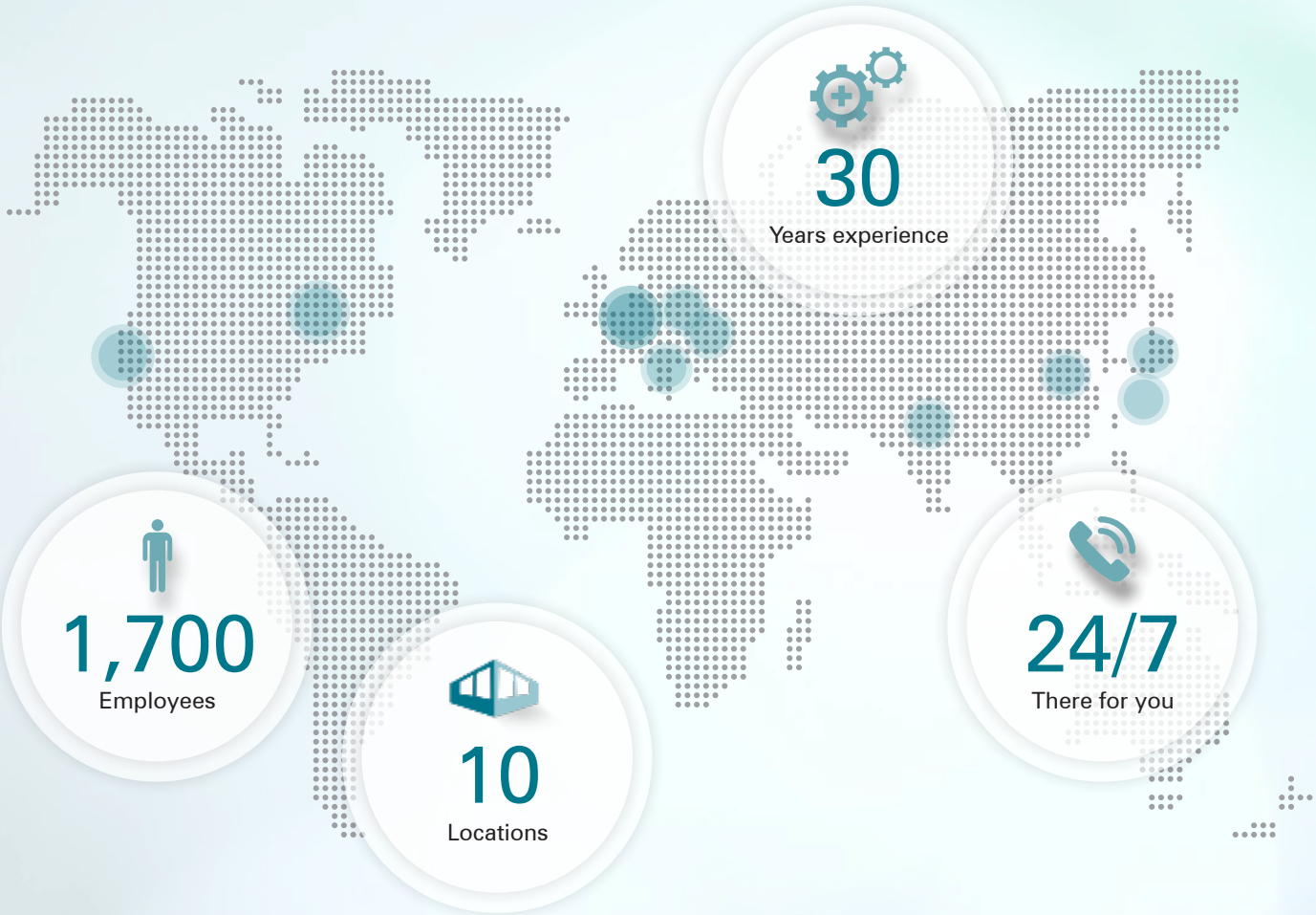
DISPLAY PRODUCTION SOLUTIONS

Display Production Solutions

For AMOLED, LTPS, IGZO, TFT-LCD and touch panel production

GERMAN ENGINEERING—INTERNATIONALLY STAGED—GLOBAL REFERENCES



Manz AG

Established 1987
Headquarters in Reutlingen, Germany.
Additional branches in Germany, Slovakia, Hungary, Italy, China, Taiwan, the United States, South Korea and India.

Employees

Approx. 1,700 employees worldwide, of which approx. 500 are engineers

Core technologies

Automation
Metrology
Laser processing
Wet chemistry
Roll-to-roll

Production solutions for TFT-LCD display & touch panel

WHETHER COMPUTER SCREENS, TVS, SMARTPHONES, TABLET COMPUTERS OR OPERATING DISPLAYS AT INDUSTRIAL WORKSTATIONS, IMPORTANT COMPONENTS OF THESE PRODUCTS HAVE BEEN PRODUCED ON OUR EQUIPMENT FOR MANY YEARS. IN THE MANUFACTURING OF LCD AND (AM)OLED FLAT SCREENS AS WELL AS TOUCH SENSORS, OUR PRODUCTION TECHNOLOGY HAS ESTABLISHED US AS A LONG-TERM PARTNER FOR CUSTOMERS WORLDWIDE.

Manz AG, based in Reutlingen, Germany, is a pioneer for innovative products in fast-growing markets. The company, founded in 1987, has expertise in five technology sectors: automation, metrology, laser processing, wet chemistry, as well as roll-to-roll processes. Manz deploys and further develops these technologies in three strategic fields, the "Electronics", "Solar" and "Energy Storage" business segments.

The company operates production facilities in Germany, Slovakia, Hungary, Italy, China and Taiwan. Manz also has sales and service branches in the USA, South Korea and India. Manz AG has approximately 1,700 employees, about half of which are in Asia.

In 2008, Manz gained additional technology know-how and production capacity through the acquisition of Manz Intech (Taiwan). With Intech's experience of over 30 years, Manz is now specialized in the development and manufacturing of TFT-LCD and touch panel wet process equipment in Asia. Due to our advanced solutions we have achieved a market leading position in this field.

In 2015, the G8.5 copper etching equipment won the Outstanding Display Component Product of Gold Panel Award. Meanwhile, Manz received the first order for wet process tools with the G6 low temperature polysilicon (LTPS) display production process.

In 2016, Manz proved its outstanding quality and technology again by receiving an order for G8.6 wet process equipment from a large-generation display manufacturer.

Furthermore, Manz successfully developed the Track Line solution for the display lithography process in 2017.

With its slogan "passion for efficiency", Manz is making a promise to offer its customers – all companies active in important future markets – increasingly efficient production equipment.

Display Equipment Milestone

2008 Taiwanese Intech joins the Manz Group. Manz becomes the leading equipment provider of wet process tools.

2009 Acquired first order of G8.5 copper etching equipment.

2013 Received first order from AMOLED display industry.

2014 Launched Slit coating equipment and awarded for the outstanding product of Gold Panel Award by TDUA.

2016 Received a large-generation display order of G8.6 wet process equipment

2017 Exceeded 3,000 units of sales record for display and touch panel equipment.

Developed Track Line solution for display lithography process successfully.

The CAGR of large size 4K panels is expected to grow by

+17.3%

by 2020, as the panel makers expand their capacity according to the growing demand for end products.

THE APPLICATION OF MANZ CORE TECHNOLOGIES

MANZ DISPLAY PRODUCTION SOLUTIONS

WET CHEMISTRY

- CLEANER
- DEVELOPER
- ETCHER
- STRIPPER
- REWORK
- COATER FOR PHOTO RESIST, POLYIMIDE AND PEDOT COATING

AUTOMATION

- LOADING & UNLOADING SYSTEMS
- TRANSPORTATION CONVEYOR
- ROBOTIC HANDLING SYSTEMS
- MACHINE CONTROL & SCADA
- SIMULATION OF PLANT PLANNING

LASER PROCESSING

- LASER CUTTING, DRILLING AND SCRIBING OF GLASS, STRENGTHEN GLASS AND SAPPHIRE
- LASER LIFT OFF OF PI FILM
- LASER CUTTING OF POLARIZER

Manz has expertise in five technology sectors: automation, metrology, laser processing, wet chemistry, as well as roll-to-roll processes. With this comprehensive expertise, we offer customers in many industries efficient system solutions for demanding applications. Manz display production solutions apply wet chemistry, automation and laser processing to develop new production technology and systems for customers. In this way we contribute to lowering the production cost of end products and to making them available to large buyer groups worldwide.

FLAT PANEL DISPLAY PRODUCTION PROCESS

ARRAY PROCESS

Cleaner
Deposition
Cleaner
Coater
Pre Pake
Exposure
Developer
Post Bake
Etcher
Stripper
Inspection

CELL PROCESS

Cleaner
PI Print
PI Rework
Pubbing
Cleaner
ODF
Cell Cut
Grind
Cleaner
Polarizer Sticker

C/F PROCESS

Cleaner
Coater
Pre Pake
Exposure
Developer
Post Bake
Cleaner (Pre ITO)
Handling
ITO Sputter
CF Rework
Cleaner (Post ITO)

FLEXIBLE OLED

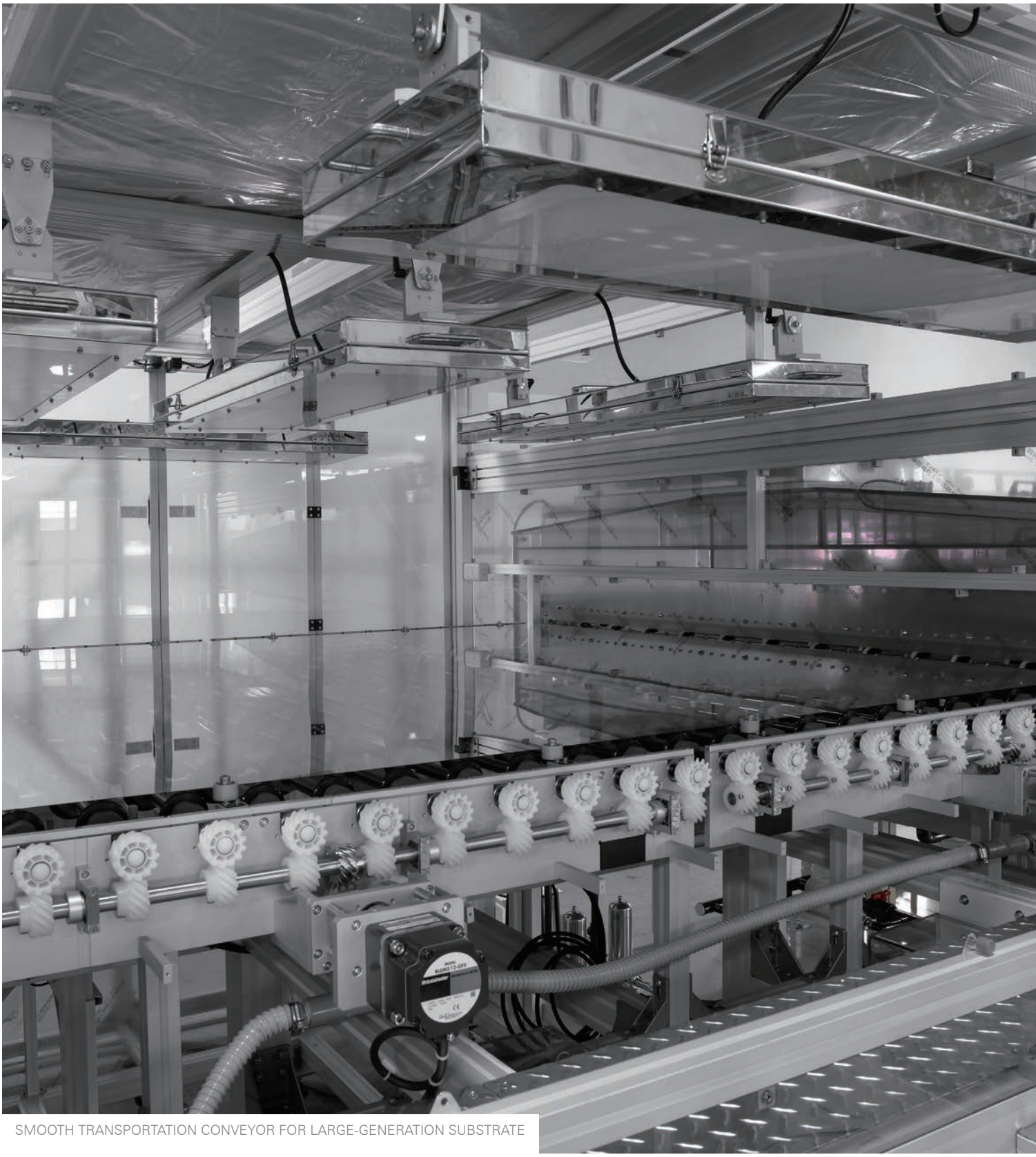
PI Coater
PI Oven

LTPS PROCESS

Evaporator
Encapsulation CVD
Laser Lift Off
Laser Cutter

Manz equipment

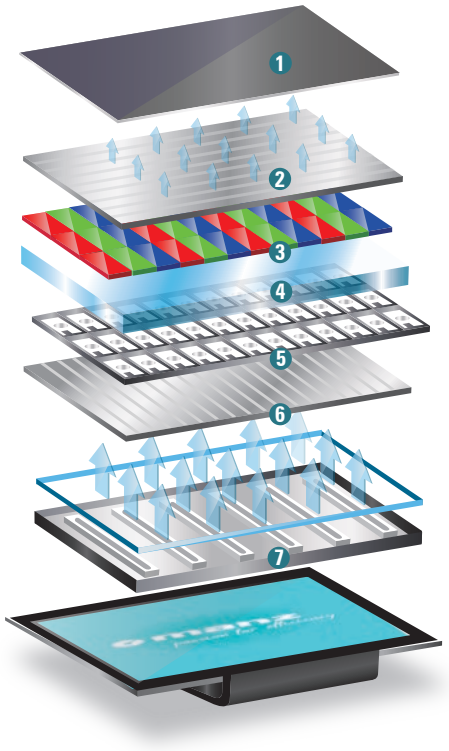
The 3rd party equipment



SMOOTH TRANSPORTATION CONVEYOR FOR LARGE-GENERATION SUBSTRATE

Superior technology and equipment matrix for high-resolution TV production process

MANZ DISPLAY SOLUTIONS PROVIDE CUSTOMERS WITH HIGH EFFICIENT SERVICES AND CONSULTING OF PROFESSIONAL PROCESS TECHNOLOGY.



1 AR Cover Glass

Automation
- Loader, Unloader, Robot Handling System

Wet Chemisty
- Pre Cleaner, Post Cleaner

Laser Processing
- Laser Cutter

2 6 Polarizer

Automation
- Roll-to-roll System

Laser Processing
- Laser Cutter

3 Color Filter Glass

Wet Chemisty
- Unpack Cleaner
- Pre Cleaner, Post Cleaner
- Pre Photo Cleaner
- Photoresist Developer

Coating
- Photoresist Coater

4 Liquid Crystalline

5 TFT Array

Automation
- Loader, Unloader

Wet Chemisty
- Unpack Cleaner
- Pre Cleaner, Post Cleaner
- Pre Photo Cleaner
- Photoresist Developer
- Metal Etcher & Stripper

Coating
- Photoresist Coater
- Poliyimide Coater

Laser Processing
- Laser Lift Off (LLO)

3 4 5 Cell

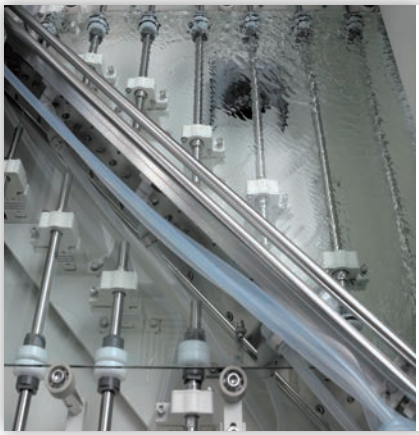
Automation
- Loader, Unloader

Wet Chemisty
- After Rubbing Cleaner
- Scribing Cleaner (SRCN)
- Polarizing Cleaner (PACN)
- Mask Cleaner

7 Backlight Unit

Display production solutions

The display industry has been developing for nearly 20 years. With the continuous innovation of product technology and the popularization of electronic products, the application of display products is also diversified. Higher resolution, better color saturation, a wider viewing angle — the properties of displays are largely determined by the equipment on which they are produced. Manz display production solutions offer state-of-the-art process equipment including wet chemistry, automation, coating, and laser processing technologies for AMOLED, LTPS, IGZO and big generation TFT-LCD and touch panel production processes. In this way, we contribute to lowering the production cost of end products and to making them available to large buyer groups worldwide.



WET CHEMISTRY

- Small footprint design: takes up a minimum of factory space to reduce ownership costs
- Outstanding process uniformity for processing all kinds of different sizes of substrates
- In-line production and ozone water cleaning mode for Pre ELA, Pre GI process of high-end LTPS display production can increase throughput and process yield
- Excellent isolation effect and air pumping field control effectively prevents leakage of chemical gas and liquid and increases production safety
- The tool with spray or dip functions offers different process options for customers
- Special chamber design: Prevents internal cross-contamination or corrosion, lowers glass breakage rate, effectively reduces down time, and increases production throughput

AUTOMATION

- Substrate dimensions: From 2 inch up to G10.5 (2940 mm x 3370 mm)
- Substrate temperatures: Up to 160 °C
- Small footprint and short production cycle
- Ultra low breakage rate: (G10 < 0.02 %)
- Loading accuracy: Up to 0.3 mm (Shadow mask)
- Fastest tact time: G7 ~ G8.5 = 25 Sec / Substrate

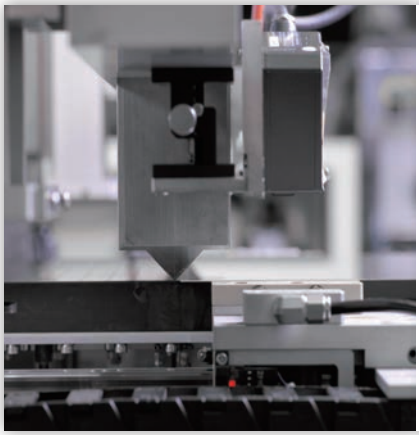
Manz is your best choice!

MANZ DISPLAY PRODUCTION SOLUTIONS WITH OUTSTANDING PRODUCTION SPEED, HIGH UPTIME AND YIELD OFFER CUSTOMERS QUALITY AND PROFITABILITY.

SIMPLE WORKFLOWS

HIGH UPTIME AND YIELD

PROFITABLE PRODUCTION



COATING

- Uniformity ≤ 2.5 %
- Unique syringe pump design for excellent reproducibility > 99.9 %
- Coating pressure stability maintained under 0.15 kpa
- Data Logger Viewer & PC (optional) makes the user access to real-time production data
- Air suspension system effectively avoids the process variation

LASER PROCESSING

- Provide laser cutting, drilling and scribing system for glass, strengthened glass and sapphire
- Fully automated and modular laser system: To shorten the commissioning period and speed up to mass production
- Substrate size: From 2 inches to G4.5 substrates
- Laser Lift Off (LLO) for LTPS + OLED production process

manz

Our Locations

Manz AG
Steigaeckerstrasse 5
72768 Reutlingen
Germany

Tel.: +49 7121 9000 0
Fax: +49 7121 9000 99

www.manz.com
info@manz.com

Manz China Suzhou Ltd.
No. 405, JiaLingjiang Road,
Suzhou New District,
Suzhou City, JiangSu Province,
China 215153

Phone +86 512 65136050
Fax +86 512 65136061

contact@manz.com.cn
www.manz.com.cn

Manz Taiwan Ltd.
No. 3, Tsu Chiang 3rd Road,
Chungli City, Taoyuan County,
32063 Taiwan

Phone +886 3452 9811
Fax +886 3452 9810

info@manz.com.tw
www.manz.com.tw

MANZ AG 03/2022