
ficonTEC
photonics assembly & testing

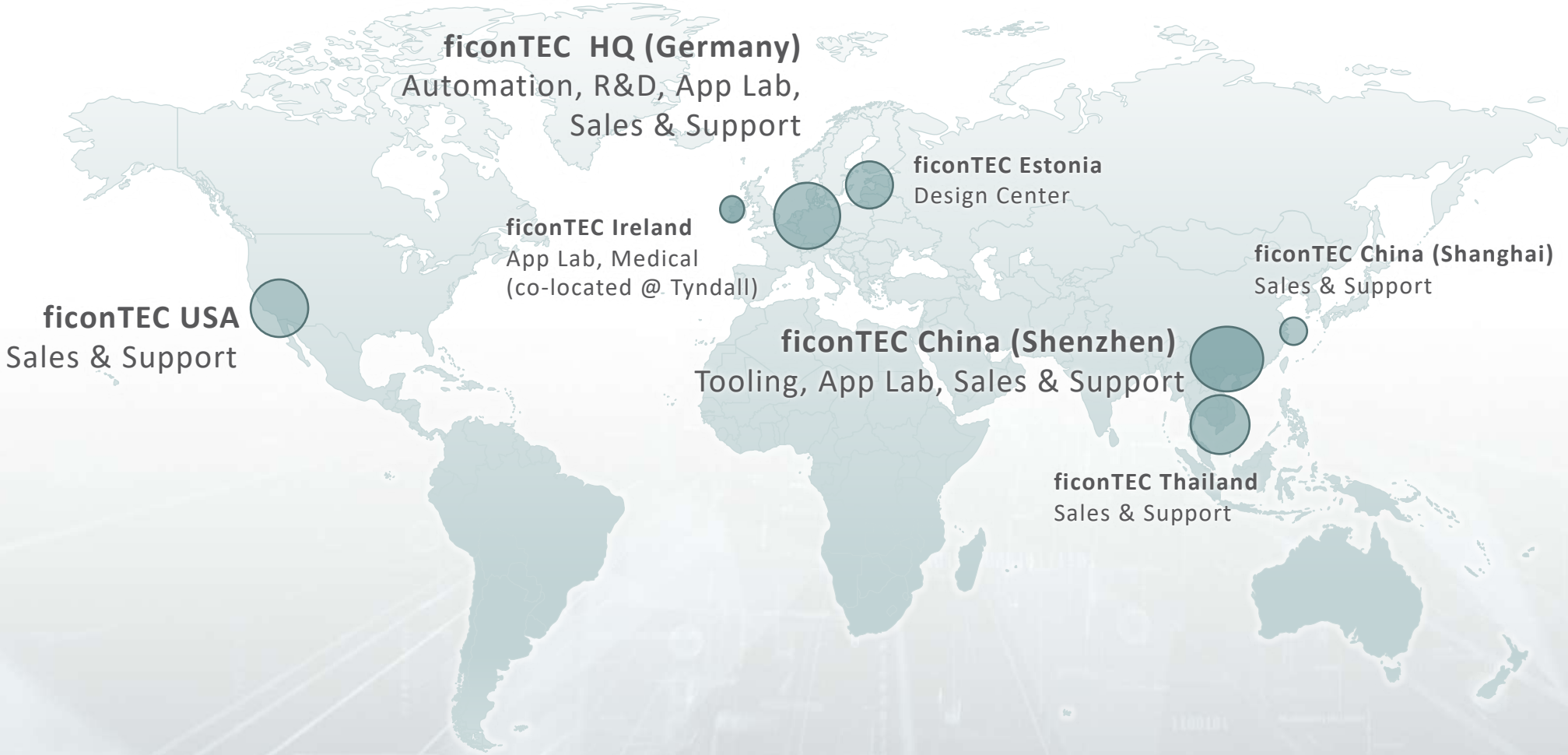
Advanced Automation For High-Volume Assembly And Testing Of Automotive Lighting Modules

EPIC Online Meeting – Automotive Lighting

Company Overview

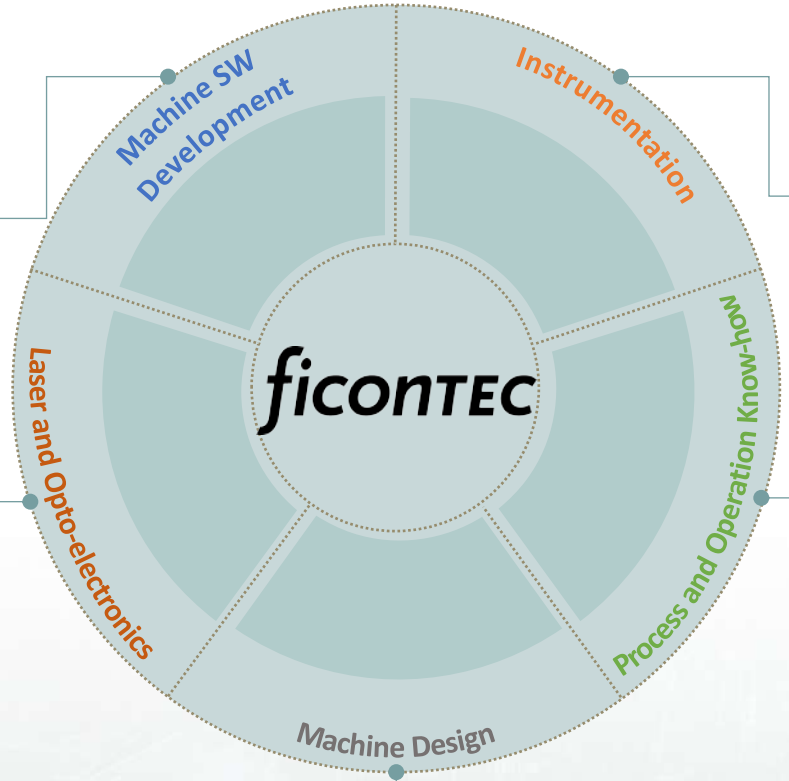
Established:	2001. 20 years of *#photonics_assembly_and_test*
Headquarter:	Achim, Germany
Offices:	USA, China, Thailand, Estonia, Ireland
Product focus:	Cyber-Physical Systems for the Assembly And Test Of Photonic Devices
Installed base:	More than 800 Machines Operational Worldwide
Organization:	>50% are Engineers of which: 30% in R&D; 60% in Engineering, Assembling and Service; 10% in Sales
Revenue:	€ 50M (2019)

Global Foot Print



Core Competencies

- Advanced machine vision
- AI-driven inspection software
- Machine Learning Modeling
- Precision motion control
- Hardware integration



- Measurement devices' integration
- Modular and Rack & Stack instruments
- Virtual Instruments

- Optical modelling
- Optics assembly
- Micro-optical systems
- Experimental lab work
- Analytics

- Experts in (UV) epoxy curing
- Laser-assisted soldering
- Laser welding
- Accuracy & repeatability in sub-nm & sub-arcsec range
- Handling sensitive devices
- Smart positioning, fast-active alignment

- Solidworks design work
- Experience with over 300 different machine designs
- Modular building blocks
- Manufacturing skills for micro-components
- Experts in micro-assembly-compliant design

From Lab to Fab:
The machine is the physical manifestation of the customer process

Automotive Industry's Critical Metrics

Total Cost of Manufacture (CapEx + OpEx). *The lower, the better*

Manufacturing Cycle Time. *The faster, the better*

Yield (quality). *The higher, the better*

Scrap Rate (quality). *The smaller, the better*

Average Production Downtime. *The minor, the better*

ficonTEC Can Address These Critical Metrics

Support for PPAP (Production Part Approval Process) and APQP (Advanced Product Quality Planning)

Low TCM, Fast Cycle Time, High Yield, Low Scrap Rate and Low APD with ML Predictive Maintenance and Global Service Operation.

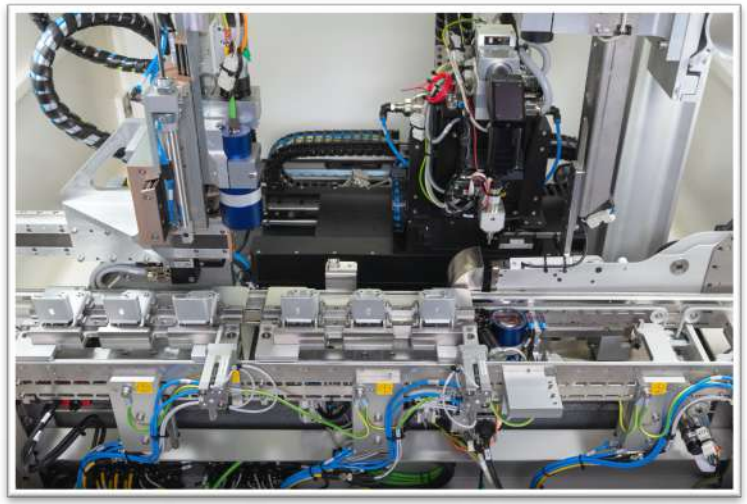
Production Lines for LiDAR, Advanced Sensors and Lighting Systems.

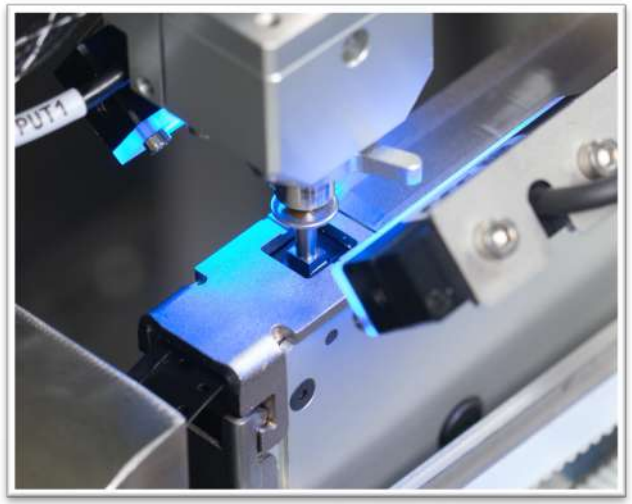
EXAMPLE 1: ASSEMBLYLINE A1200

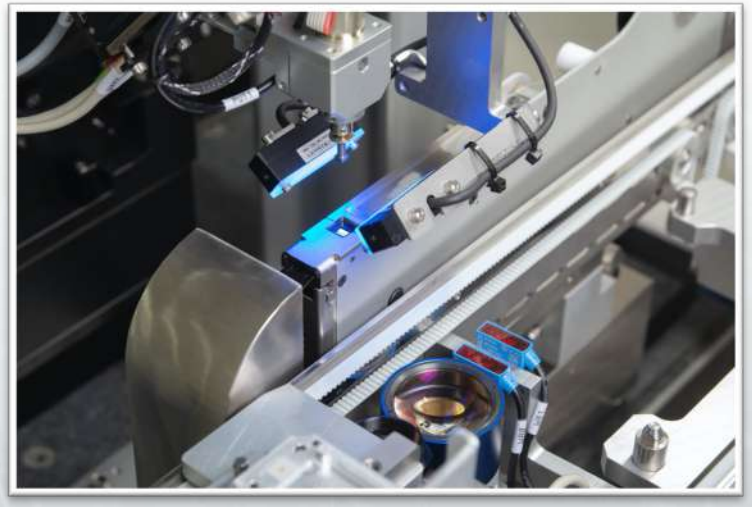
In-line-capable high-speed align-&-attach for automated LED assembly

High-throughput and high quality are key common requirements in the photonics and automotive industries. A1200 combines speed and accuracy:

- High-precision placement
- High-speed assembly leveraging
  - High-performance optics in combination with parallel processing
  - Assembly on top of conveyor minimizes handling
  - Material input via reel tape feeder







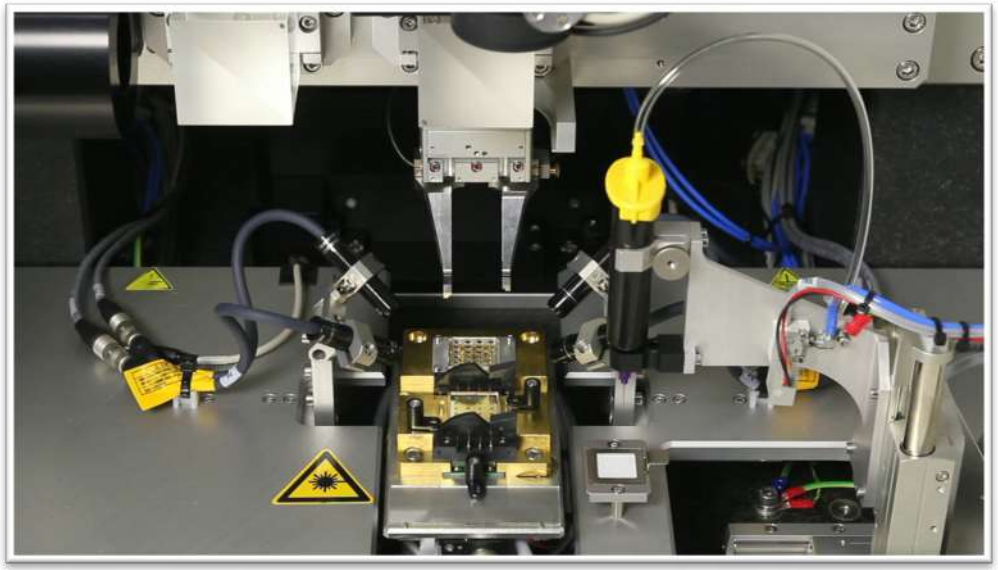
EXAMPLE 1 ASSEMBLYLINE A1200

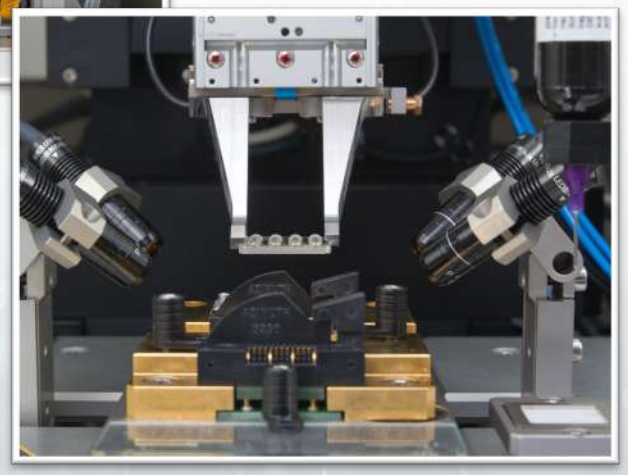
Video – High-speed LED module assembly (0:44)

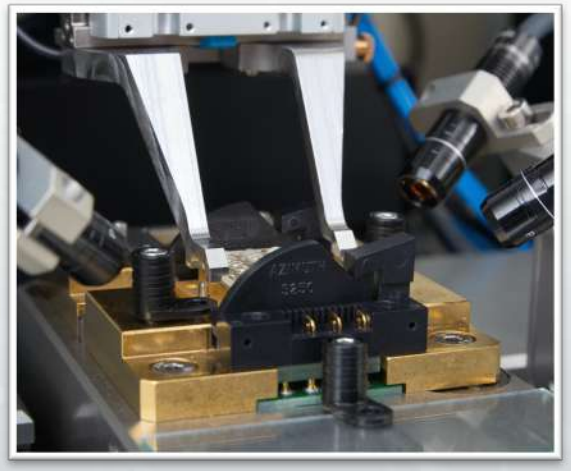
Example 2: Lens Array Alignment for Automotive Lighting

Fast-active alignment of a 5 x 4 lens array using ficonTEC's unique beam characterization technology:

- alignment sequence row by row
- epoxy dispensing after dry alignment of each row
- quick wet alignment as final alignment

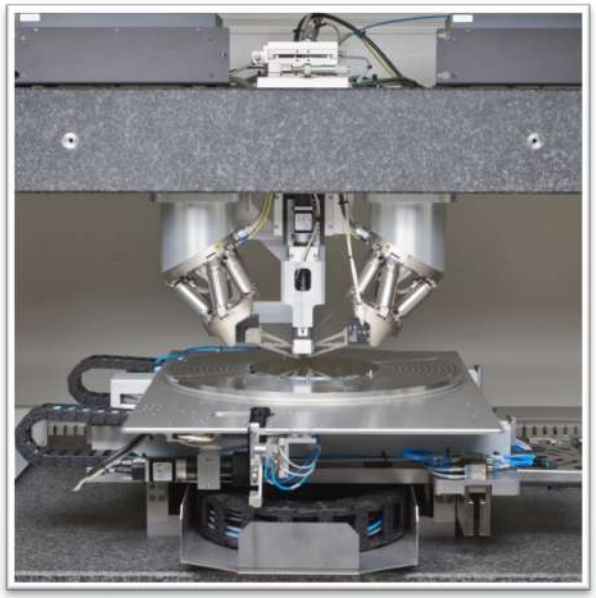


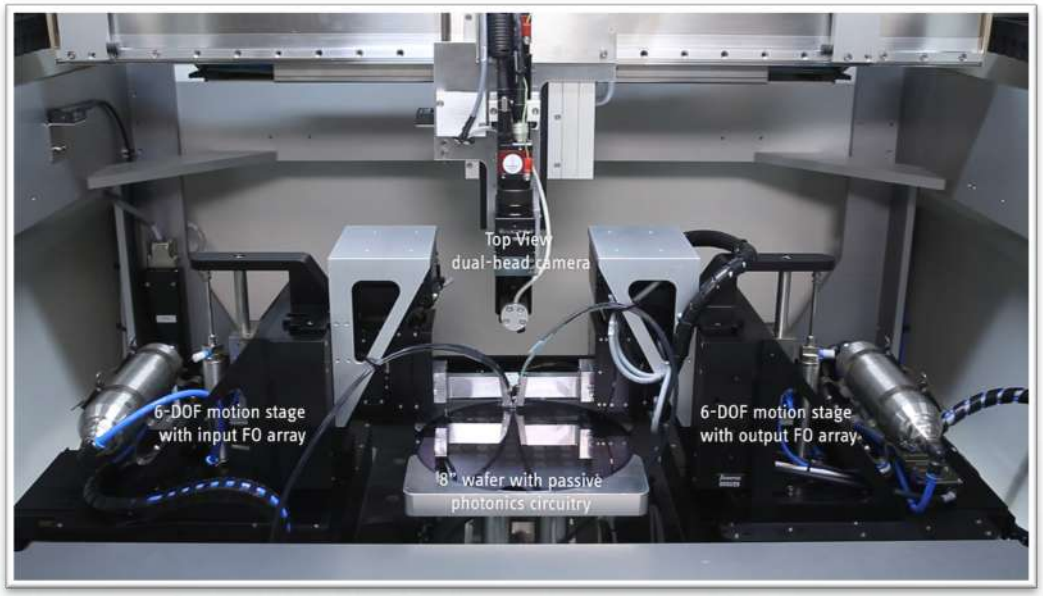




Example 3: WLT Testing in Automotive Lighting

WLT at the beginning of the process flow of advanced automotive lighting systems (VCSEL or LED based) is a key step to achieve an over all cost production cost reduction and low Scrap Rate





ficonTEC Can Address Automotive Industry's KPI

Total Cost of Manufacture (CapEx + OpEx). *The lower, the better*

Manufacturing Cycle Time. *The faster, the better*

Yield (quality). *The higher, the better*

Scrap Rate (quality). *The smaller, the better*

Average Production Downtime. *The minor, the better*

With Production Lines for LiDAR, Advanced Sensor, Lighting System

Support to PPAP (Production Part Approval Process) and APQP (Advanced Product Quality Planning)
Low TCM, Fast Cycle Time, High Yield, Low Scrap Rate and Low APD with Predictive Maintenance and a Global Service Team.

THANK YOU !

For more information you can contact us via:

info@ficontec.com

stefano.concezzi@ficontec.com

arne.bentdfelt@ficontec.com

www.ficontec.com