



MANUFACTURING MADE LIGHT
Solutions for integrated photonics. Built to scale.



CUSTOMLINE

Flexible, multi-purpose 'align-&-attach' platform

A highly capable development and/or batch processing platform, uniquely combining high-precision optical alignment capability with a multiplicity of bonding technologies. Designed for all optical, fiber and die/chip/PIC connection and hybridization tasks.



Highlights

- ✓ Flexible and highly capable photonic device assembly platform
- ✓ For all optical, fiber and die/chip/PIC connection and hybridization tasks
- ✓ Designed for collaborative R&D and low-volume/jobshop environments
- ✓ For sensors & lidar, co-packaging, SiPh process development and more ...



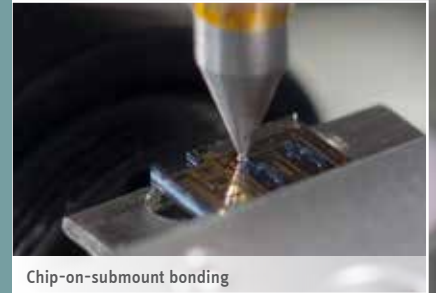
ficontec
photonics assembly & testing

Flexible, multi-purpose 'align-&attach' platform

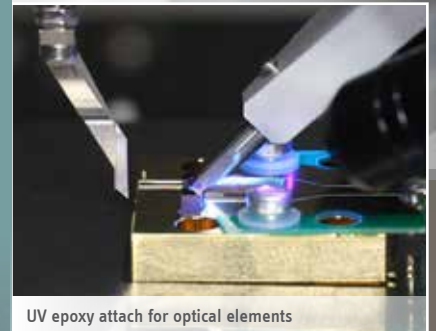
CUSTOMLINE is a highly capable development and/or batch processing platform for customers in the semiconductor and photonics packaging market. More than any other ficonTEC product, these systems combine high-precision optical alignment capability with a multiplicity of assembly technologies – including epoxy-based attachment, eutectic die bonding and laser soldering.

Available as a versatile and stand-alone assembly cell, and with the broadest array of installable modules for any ficonTEC platform, CUSTOMLINE can be configured – and re-configured – to the widest range of R&D, process development and batch manufacturing tasks. Extensively utilized in academic and collaborative research as well as in photonics jobshop environments, CUSTOMLINE is an industry-proven design.

Importantly for any development process, CUSTOMLINE systems can be operated manually, semi automatically or fully automatically. Optional modules extend functionality even further, including automatic tool changing, wafer handling capability and TESTLINE (test-&-qualify) functionality.



Chip-on-submount bonding



UV epoxy attach for optical elements

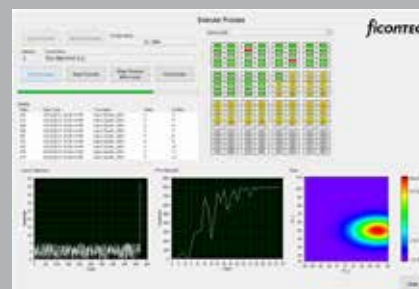
Software Control

PROCESS CONTROL MASTER (PCM) is ficonTEC's unified process-oriented control interface that ships with all turn-key stand-alone systems and multiple machine configurations. PCM features an intuitive UI that includes all machine vision, high-resolution positioning and system management software routines required to reliably and repeatably drive passive/active alignment and attachment/bonding process hardware.

PCM is fully enabled for automated mixed-signal electro-optical test and characterization tasks. An up-to-date feature set includes AI-based Deep Learning defect recognition capability, ML-oriented production data monitoring for reduced downtime, and the possibility to direct call functions in Python files.



High-level function interface

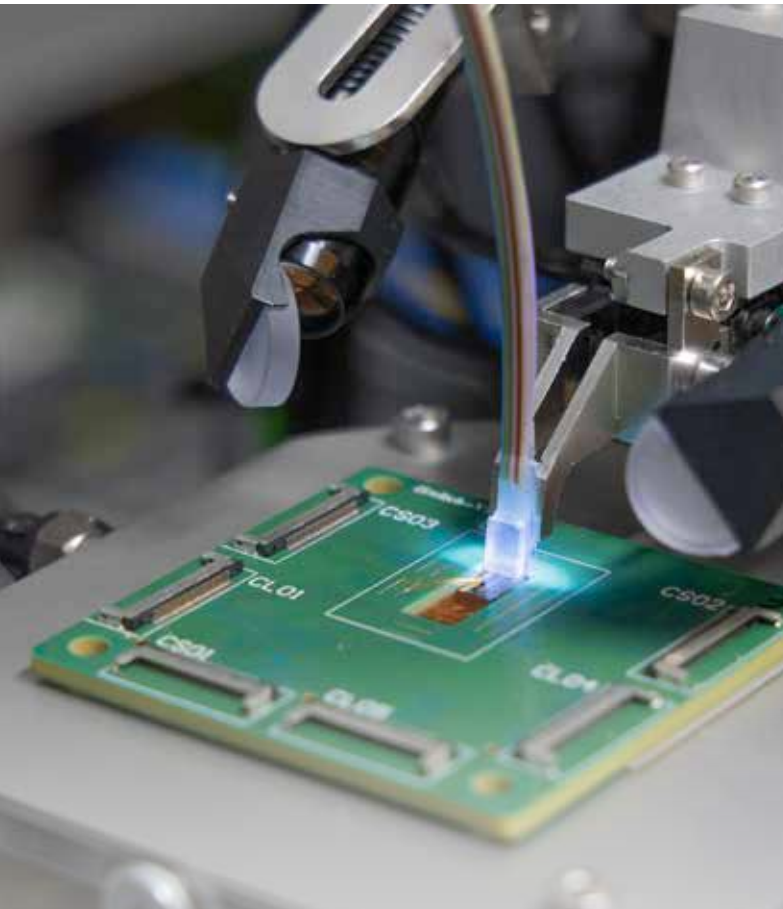


Freely configurable operator interface



CUSTOMLINE

Flexible, multi-purpose 'align-&attach' platform



Key features

- High-precision motion and alignment ($\mu\text{m}/\text{sub-}\mu\text{m}$)
- Pick-&-place from/to standard/custom carrier formats
- Epoxy and eutectic bonding, laser soldering
- Heating plate, bond force and flip-chip modules
- Exploratory R&D through to batch production

General tasks & applications

- All optical element & die/chip/PIC 'align-&-attach' tasks
- Fiber & waveguide pigtailling & connectorization
- Transceiver, co-packaging & hybrid development
- Flexibly configurable with TESTLINE capabilities
- Development and batch manufacturing for sensors and lidar, communications, transport & IoT, and 3D scanning

Modular & (re-)configurable

- State-of-the-art die and carrier handling options
- Highest number of diverse module types available
- Add or swap modules to re-configure & re-purpose
- Processes directly transferable to production systems
- ficonTEC's most versatile platform for development needs

CUSTOMLINE in collaborative R&D

CUSTOMLINE systems are used extensively and successfully within collaborative funded research throughout Europe and at other locations around the globe. The combination of flexible automation, capability diversity and large working space make CUSTOMLINE ideal for highly exploratory and innovative development.



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ficonteC is the global market leader for automated assembly and test systems for modern optoelectronics and integrated photonic devices. An unequalled breadth in process capability has been developed in serving the needs of a broad range of applications, including telecom/datacom and 5G, sensors and lidar, IoT and mobility, high-power diode laser assembly, and many more.

A unique and modular approach to production equipment design means that each system delivered is the automated and optimized embodiment of a customer-defined process.

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Core system specifications	 C2000
Motion system	minimum 4-axis (3+1) high-precision alignment*
Device handling	pick-&-place from/to Gel-Pak, Waffle Pack, blue tape, custom
Temperature control	temperature-controlled chuck, -+15 to +80 (+/- 0.1) °C
Load options	any combination of manual and/or automated loading (with single or dual conveyor)
Feed options)	suitable for Jedec or Auer boats, or for customer trays
Machine vision	system referencing and observation camera options device and I/O port referencing
Software features	flexible and powerful process programming extended operator-less control Windows 10 PC
Minimum connections	120 VAC (or country specific) air/vacuum 100 Mbit/s network
Cleanroom compliance	ISO 6**
Physical features	rugged steel base production cell
Dimensions (w x b x h, mm)	1850 x 1500 x 2000
Weight (typ., kg)	2500

* alternative multi-axis configurations optional ** others available on request

CUSTOMLINE systems are primarily intended as a powerful and flexible 'align-&-attach' platform for R&D and process development. They are also suitable for single and batch production tasks for optical, fiber-optical, optoelectronic and PIC device integration. Special purpose cells, robotic systems as well as some TESTLINE functionality can be flexibly incorporated to suit customer needs.