finetech

FINEPLACER® femto 2

Advanced Sub-Micron Bonder

Unrivaled Flexibility for Prototyping & Production

- Placement accuracy of 0.3 µm @ 3 Sigma on small to large substrates
- Automatic placement accuracy calibration
- Wide range of controlled bonding forces

UHD vision alignment system with FPXvision™

Multi-chip capability

Wide range of component presentation (wafer, waffle pack, gel-pak®)

Safe and controlled process environment with cleanroom quality

Numerous bonding technologies (adhesive, soldering, thermocompression, ultrasonic)

Ultra low bonding force

Modular machine platform allows in-field retrofitting during entire service life

Large bonding area

Features / Benefits

Features	Benefits
Various bonding technologies in one recipe	Real flexibility to implement new technology approaches
Wide range of supported component sizes	One bonding plattform supports a broad spectrum of applications.
In-situ process observation in HD	Immediate visual process feedback for fast and easy process quality verification
3-color LED illumination	Excellent contrast values with different materials for best visibility and recognition
Data / media logging and reporting function	Comprehensive process documentation and traceability of process parameters for analysis
Full process access & easy visual programming with touch screen interface	Fast composition of process sequences and intuitive process implementation
Synchronized control of all process related parameters	Maximum process reproducibility
Integrated scrubbing function	Void reduction and improved surface wetting condition for optimized soldering results and thermal contact
Fully automatic and manual operation	Fully manual mode available for fast and easy R&D work without any programming.
Automatic tool management	In-situ tool tip change enables multi chip processes without operator intervention

Technologies

» Sintering
» Thermocompression bonding
» Thermo- / ultrasonic bonding
» Soldering / eutectic soldering
» Adhesive bonding
» Active alignment
» Precision vacuum die bonding
» Laser-assisted bonding

Processes

» Flip chip bonding (face down)
» Precision die bonding (face up)
» Wafer level packaging (FOWLP, W2W, C2W)
» 2.5D and 3D IC packaging (stacking)
» Multi chip packaging (MCM, MCP)
» Chip on glass (CoG)
» Chip on flex/ film (CoF)
» Glass on glass
» Flex on board
» Chip on board (CoB)

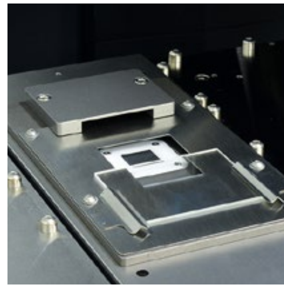
Applications

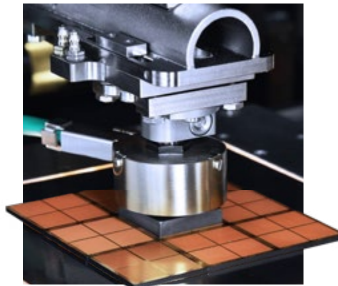
» Laser diode assembly
» Laser diode bar assembly
» Lens (array) assembly
» High-power laser module assembly
» Optical Sub Assembly (TOSA/ROSA)
» VCSEL/photo diode (array) assembly
» Micro-optical bench assembly
» Micro optics assembly
» IR detector assembly
» Generic MOEMS assembly
» e-beam module assembly
» Generic MEMS assembly
» X-Ray detector assembly
» Visual image sensor assembly
» Single Photon detector assembly
» Ink jet print head assembly
» Gas pressure sensor assembly
» Acceleration sensor assembly
» Ultrasonic transceiver assembly
» Mechanical assembly

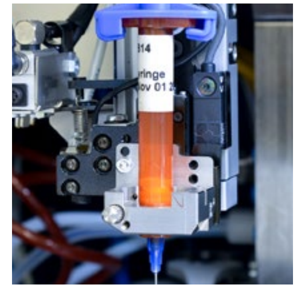
Modules & Options

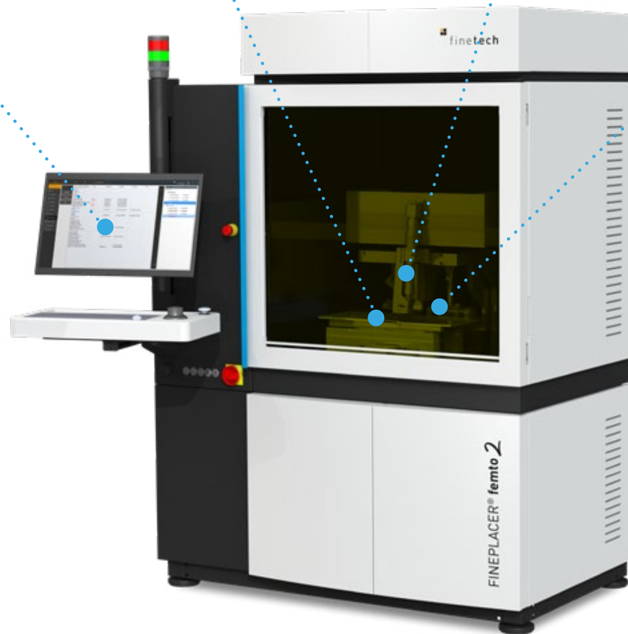
- » Automatic Dipping Unit
- » Automatic Tool Changer
- » Bonding Force Module (automatic)
- » Chip Heating Module
- » Component Presentation
- » Die Eject Module
- » Die Flip Module
- » Dispense Module
- » Flip Chip Test Module
- » Formic Acid Module
- » Handling Module
- » Height Sensor (Laser)
- » ID Code Reader
- » Laser Activation Module
- » Laser Bottom Heater
- » Manual Dipping Unit
- » Motorized Nick & Roll Motion
- » Process Gas Module
- » Process Gas Selection
- » Substrate Heating Module
- » Substrate Support
- » Ultrasonic Module
- » UV Curing Module
- » Vacuum Chamber Module
- » Wafer Heating Module

Live process observation


Substrate Heating Module


Chip Heating Module


Dispense Module



Accuracy
0.3 µm @ 3 Sigma
10 µm

Component
min. 0.03 mm x 0.03 mm
max. 100 mm x 100 mm

Wafer Support
300 mm

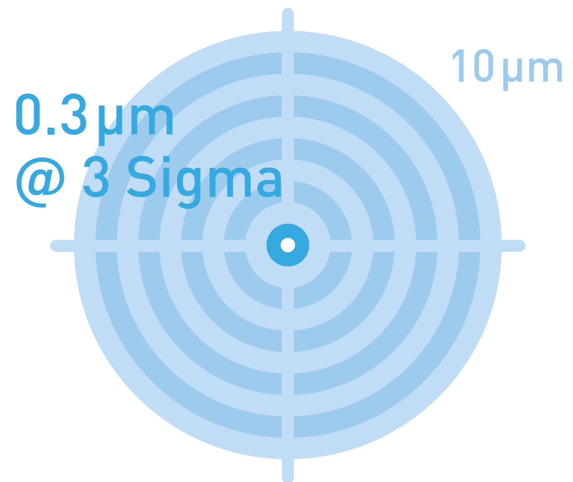
Force
0.05 N
1000 N

Operation
manual
semi automatic
automatic

How We Understand Accuracy

For assembly systems in packaging technology, so-called die bonders, the specified placement accuracy is an essential key figure for classification. However, it is often not clear which accuracy is meant and how or when it is measured. Therefore, Finetech relies on a transparent and verifiable method description of how the accuracy of our placement and assembly systems is measured and specified. This technical paper explains the context as well as the influencing factors of accuracy and shows which conclusions the customers can draw for themselves from the specified accuracy of Finetech products, but also those of other manufacturers.

Download the paper here:

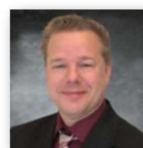


Modularity Pays Off

Due to a large number of available process and function modules, the FINEPLACER® supports a particularly wide range of applications. When starting out, this flexibility enables configurations tailored exactly to the current needs. Moreover, the system can be adapted to new tasks over its entire service life, which is an integral part of the machine concept. Modules can be easily combined or exchanged, which increases the flexibility of the system and safeguards the investment in the long term.

Customer Feedback

"The FINEPLACER® femto 2 has enabled our company to realize higher throughput automation of our high accuracy flip chip bonding operations. As our high reliability opto-electronic transceiver business is expanding, this has helped us to satisfy our customer's growing needs."



Howard Lenos
Ultra Communications, Inc.

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