FC 150

Automated Device Bonder

The FC150 offers the latest evolution in assembly techniques. Available as an automated system to level, align and bond components ranging from 0.2 to 100 mm, the FC150 supports a wide range of assembly applications, including optoelectronics & MCMs.

With configurations ranging from manual to full automation, the FC150 provides development and production capabilities on a single upgradeable cost-effective platform.

For each packaging challenge, S.E.T. works in collaboration with the end user to find the optimum solution. The versatile design of the FC150 makes it ideal for developing a broad range of applications through innovative technologies.

Features & Benefits

- ± 1 µm @ 3 sigma post-bonding accuracy and 20 µradian leveling guarantee high yields on the most advanced products.
- Air bearing and granite structure ensure long-term stability and reliability.
- Compression, Z-control and temperature profiling on both upper and lower components, together with process monitoring, maximize process control.
- Optical automatic leveling and alignment enables hands-off operation for production applications.
- Graphic interface ensures user-friendly operation.

Bonding Processes

- Die Bonding, Flip Chip Bonding
- Mass reflow, in-situ reflow and fluxless eutectic bonding
- Thermocompression, ultrasonic and adhesive bonding
- Gold, gold/tin, indium, epoxies, adhesives, polymers...
- Fragile material compatibility: InP, GaAs, MCT...
- UV or Thermal cure adhesive

Applications

- Chip-to-Chip, Chip-to-Substrate bonding
- Optoelectronic & photonic devices assembly
- MOEMS, MEMS, MCM...
- Nanoimprint lithography: aligned UV NIL and hot embossing on wafer

FC 150

Automated Device Bonder

Technical Specifications

Process station

Component Size	
Chip (Upper Component)	0.2 ~ 100 mm Thickness up to 2 mm
Substrate (Lower Component)	0.5 ~ 150 mm Thickness up to 6 mm
Bonding Arm : Universal Bonding Arm	
Placement Accuracy Post-bonding	± 1 µm @ 3 sigma* 1 ~ 3 µm
Leveling Travel	± 0.57 degrees Resolution 2 µrad
Z Travel	178 mm, Resolution 0.5 µm
Force	0.3 - 500 N (1000 and 2000 N optional)
Bonding Arm: S.E.T. Reflow Arm	
Post-bonding Accuracy	± 1 µm @ 3 sigma*
Leveling Travel	± 0.5 degrees Resolution 0.05 µrad
Z Travel	162 mm, Resolution 0.5 µm
Force	0.2 - 4 N
Alignment Stage	
XY stage Travel	300 x 250 mm Resolution 0.1 µm
Theta Travel	± 7 degrees Resolution 8.3 µrad
Z Travel	11 mm, Resolution 0.25 µm
Bonding Heads	
Room Temperature	Up to sq. 100 mm
Heating	sq. 22, 50, 100 mm RT to 450°C, Resolution 1°C
Ultrasonic	55 - 65 kHz, 40 W max
UV	80 mW/ cm² @ 365 nm
Substrate Chucks	
Room Temperature	Up to sq. 150 mm
Heating	sq. 22, 50, 100, 150 mm RT to 450°C, Resolution 1°C
Optics	
XY Inspection Travel	100 x 95 mm Resolution 0.1 µm
Autocollimator Sensitivity	20 µrad on mirror (component roughness and reflectivity dependant)
Digital Camera Resolution	0.42 µm per pixel
Field of View	320 x 240 µm
Pattern Recognition System	Cognex ™

Options

- Advanced Laser-Leveling System
- Automatic Alignment for Hands-off Operation
- Process Recording
- Chip Solder Flux or Epoxy Coating Unit
- Gas Confining Enclosure for Mass Reflow
- Chip Flipper (configuration dependent)
- Ultrasonic Bonding Head
- Dispensers
- UV Glue Curing System
- Formic Acid Vapor Bonding Environment
- Nanoimprint Lithography Configuration

General Characteristics

Machine Footprint	1500 x 980 mm
Machine height	2170 mm
Machine Total weight	800 kg
Electrical Power Supply	200 V/220 V - 2 kVA 50/60 Hz - 1 phase

Gas Confining Enclosure

S.E.T. Reflow Arm (SRA)

*Process or Configuration Dependent

Data, design and specifications depend on individual process conditions and can vary according to equipment configurations. Not all specifications may be valid simultaneously. Illustrations, photos and specifications in this datasheet are not legally binding. Specifications are subject to change without prior notice.

S.E.T.
Smart Equipment Technology SAS
131, impasse Barteudet - BP24
74490 Saint Jeoire, France

Tel : +33 (0)450 35 83 92
Fax : +33 (0)450 35 88 01
Email : info@set-sas.fr
Web : www.set-sas.fr

set
Smart Equipment Technology