

FC 150

Flip-Chip Bonder



Advanced R&D and Pilot line oriented, High accuracy and versatile flip-chip bonder 1 μm

The **FC150** is an accurate and very flexible flip-chip bonder for Chip-to-Chip (up to 100 mm) and Chip-to-Wafer (up to 200 mm) applications on the same open platform.

The versatile design and the possibility to combine different processes make the **FC150** ideal for developing a wide range of assembly applications including focal plane arrays and optoelectronic devices.

Perfect for advanced R&D, the **FC150** is also appreciated for pilot production thanks to its full automatization.

Applications

- Infrared and X-Ray image sensors
- 3D-integration, Memory stacking
- Optoelectronics and Silicon Photonics
- Flip-chip bonding, Die bonding
- Chip-to-Chip
- Chip-to-Wafer
- Nanoimprinting

Highlights

- **Accuracy*** $\pm 1 \mu\text{m}$
- **Large range of bonding forces**
- **Perfect parallelism control**
- **Confining gas including formic acid**
- **Unique vision system**
- **Flexibility for research**
- **Automatization for pilot line**

*depending on configuration and application.



User benefits

- High magnification microscope for a sharp image of the components
- Easy to use, quick set-up of new applications
- Control of parallelism to guarantee very high accuracy even under high forces
- Manual (step by step) and automatic mode
- Process recording for development, log files to track production

Main bonding process

- Flip-chip/Die bonding
- Thermocompression
- Reflow

- Gold, Gold/Tin, Indium, Copper
- UV/Thermal curing adhesives, polymers...
- Thermosonic

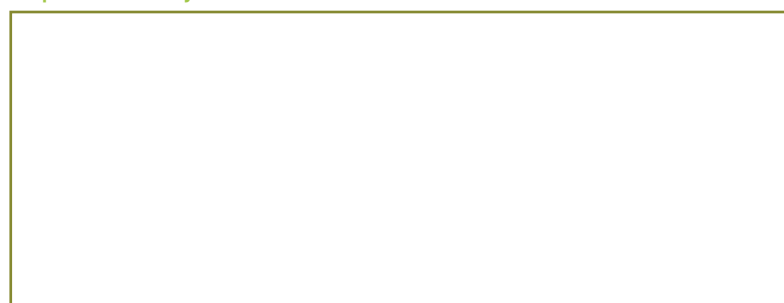
FC150 Specifications

Machine	
Footprint	1600 x 1220 mm
Height	2000 mm
Weight	1200 kg
Component size	
Chip (upper die)	0.2 x 0.2 – 100 x 100 mm Thickness up to 6 mm
Substrate (lower die)	0.5 x 0.5 – 200 x 200 mm Thickness up to 5 mm
Bonding arm	
Accuracy*	Placement: $\pm 1 \mu\text{m}$ Post-bond: ± 1 to $3 \mu\text{m}$
Leveling	SRA: ± 0.5 degree, Resolution $0.05 \mu\text{rad}$ UBA: ± 0.57 degree, Resolution $2 \mu\text{rad}$
Z resolution	SRA: $0.5 \mu\text{m}$ UBA: $0.1 \mu\text{m}$
Force	SRA: 0.3 up to 10 N UBA: 0.6 up to 1000 N, 2000 N
Alignment stage	
XY stage	300 x 250 mm
Theta travel	± 7 degrees

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.

*depending on configuration and application.

Represented by:



Bonding heads	
Room temperature	sq. 50 or 100 mm
Heating	sq. 22, 50 or 100 mm, 450°C
Ultrasonic	90 kHz
UV	120 mW/cm ² @ 365 nm
Substrate chucks	
Room temperature	sq. 50, 100, 150, 200 mm
Heating	sq. 50, 100, 150, 200 mm, 450°C
Optics	
Digital camera resolution	0.44 $\mu\text{m}/\text{pixel}$ Bright field illumination
Field of view	700 x 500 μm
Leveling measurement resolution	21 $\mu\text{rad}/\text{pixel}$
Automatic alignment	Optional
Options	
Advanced laser leveling system	Ionizer bar
Optical leveling system	Dispenser/Dipping station
Large field of view camera	Formic acid for oxide removal
Chip flipper	Face up station
Nanoimprinting lithography by Hot embossing and UV-NIL	



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