THE POWER MODULE PRODUCTION

Everything from one source
Due to major investments into the research and development of strategically needed peripherals, it was possible building the Infotech Component Matrix. Based on these modules, reliable products can be realized as flexible as building special application machines, but with an extremely high quality level comparable with standard machines. Process specific, modular and nevertheless standardized:

**PRODUCTION CELLS - PLATFORMS - ASSEMBLING - DISPENSING - FEEDING**

### Power Module **PRODUCTION LINE**

- Die-, Preform-, Spacer-, NTC-Bonder
- Wafer-, preform-, bulk goods, tape-Feeder
- Processing directly into oven wpc

### Power Module **BONDER**

- Module assembling – Vacuum soldering (PINK) – Module unloading – Work piece carrier (Wpc) lift – Return conveyor on lower level – Wpc lift
Power Module **PROCESSES**

- Loading base plates
- Assembling DBC-substrates from stack
- Laser mark DBC substrates with inspection
- Loading fixtures
- Dispensing solder paste
- Dispensing flux or primer
- Inspecting the dispensed media
- Assembling preforms supplied on rolls
- Wetting preforms from bottom side
- Assembling dies, IGBTs, diodes from wafer
- Wetting dies from bottom side
- Assembling SMD’s, e.g. Thermistors
- Assembling spacers
- Wetting spacers from bottom side
- Transferring of assembled power modules
- Unloading of soldered power modules
- Storing power modules in magazines
- Returning oven work piece carrier
- Cleaning of oven work piece carrier
- Traceability tracking of all process parameters with MES communication
- Synchronized interfaces with vacuum ovens VADU 300/400 made by the company PINK GmbH Thermosystems

Power Module **TRANSPORT SYSTEMS**

- XL Transport system with fixed width for work piece carrier 460 x 330 mm
- XL Transport system manually adjustable 85mm ... 330 mm
- XXL Transport system with fixed width for work piece carrier 650 x 330 mm
- Lift- and centering station to fix XL- or XXL work piece carriers (with indexing)
- Optional transport system extension for the output buffer
- Optional return transport system for 330 mm wide work piece carrier
- Optional interface with vacuum oven VADU 300/400 of the company PINK

Power Module **PREFORM FEEDER**

- Preform feeder PF2-14
  (Tape width 2 mm ... 14 mm)
- Preform feeder PF12-16
  (Tape width 12 mm ... 26 mm)
- Preform feeder PF22-36
  (Tape width 22 mm ... 36 mm)
- External prepare station to the preform feeders PF2
- Preform stack feeder PS32-66
  (Preform size 32 mm ... 66 mm)

Power Module **DISPENSING AND WETTING PROCESSES**

Instead of using e.g. graphite jigs often wetting processes are used. The wetting of the substrate, solder-preforms or dies will keep the product in place during the transport to the inline vacuum oven. The adhesion promoters will be cleaned out in the first chamber of the vacuum oven. Various types of adhesion promoters exist and all of them can be dispensed using Infotech dispense equipment or peripherals. Some of these can be dispensed from below (bottom-up), allowing lower cost solutions. The wetting process from the bottom side is preferred, as the solder preform and the dies can be wetted just before the placement process.

Dispensing top down:
All Infotech Component Matrix dispense valves and peripherals can be used (also for full or partial solder paste processes).

**Apply wetting processes top down:**
- Within a separate dispense cell
- Using a separate robot platform within the assembly cell
- On the same robot as the assembly process using a separate dispense head

Dispensing bottom up:
Infotech offers special jet-dispense valves, which can process low viscose adhesion promoters e.g. Ethanol to the bottom side of the solder preforms or the dies. If multiple assembly heads are used, the wetting process can be performed in parallel.
Power Module APPLICATION EXAMPLES

IC-900 Production cell with 3 preform feeders PF2-14
- Process solder preform from roll
- Cut, pick, inspect, wet and place
- Inline Smema transport system
- Full traceability using Secs/Gem
- Up to six assembly heads in parallel
- Wetting up to six preforms in parallel

IC-1200 Production cell with 8” wafer changer
- Die, preform, SMD or spacer bond process
- Inline transport- and return transport system
- Dispense head for adding solder paste
- Waffle pack 4” Stach tray feeder
- Full traceability using Secs/Gem
- Up to six assembly heads in parallel

IC-2000 Production cell with various dispense functions
- Polyimide Substrate Jet-Dispenser
- Nitrogen or plasma clean module
- Housing sealing dispense process
- Ink-jet unit for marking on housings
- Internal cure stations
- Optional load and unload module

IC-1200 Production cell with electrical test controllers (CREA)
- 8” wafer changer and wafer feeder
- Move the die to the test station
- Dynamic and static tests
- Using different temperature profiles
- Sort into different temperature grades, up to 8 grades
- Different types of output feeders

Exceeding your expectations