Bondjet BJ820

High Speed Fully Automatic Fine Wire Wedge Bonder

The Bondjet BJ820 is world’s leading fully automated fine wire wedge bonder. The BJ820 is ready for all wire bonding challenges on a single platform, using wires and ribbons made of aluminium, copper and gold. Typical applications are components in the HF and RF technology, COB, MCM and hybrids, opto and automotive electronics. The BJ820 defines the latest state of technological development compared to the competition and is benchmark for:

- The fastest bonding speed in the industry
- The largest working area
- The greatest axis accuracy

Your benefits in the spotlight

Advanced features and process advantages

- High precision touchdown detection without time delay, e.g. for bonding on very thin substrates
- Precise bondforce control (static and dynamic)
- E-Box: patented solution for optimized tool change and programmable alignment marks for wedge and wire clamp
- Wear-free components with Piezo technology
- Maintenance-free solid state joints

Flexibility

- Working area : 305 mm x 410 mm
- Flexible use of working area, e.g. with a number of bonding stations (manual loading or with indexers)
- Universal software interface for indexer control
- Maximization of throughput by automation with two or more parallel lines

Speed

- Up to 7 wires per second, application-dependent, e.g. with 25 µm wire, 1 mm loop length, metallized wafer

Quality

- Continuous real time monitoring of wire deformation, transducer current, frequency and impedance within programmable control limits
- Process integrated Quality Control PIQC: detection of further parameters by additional sensor system (e.g. friction) for 100% quality monitoring in real time (patented); available as an option
- PBS200 – server for central data management, for up to 20 Hesse wire bonders
- BDE, traceability – in PBS200 integrated XML interface or customized implementation
- SECS/GEM: integrated standardized server connection for automation and communication, handling via Workbench
- MES: interface to Manufacturing Execution Systems, integrated or customized implementation

Piezo bondheads

- Bondhead 45°, 60° and 90° (deep access)
- Freely programmable wire feed, tail length, tear stroke and opening gap of wire clamp
- Low maintenance costs
- Precise bondforce control (static and dynamic)
- Bondheads can be replaced in minutes
Technical data at a glance

Working area
- X: 305 mm; Y: 410 mm
- Z hub: 30 mm
- P rotation: 420°

Mechatronic bondhead
- Bondhead 45°, 60°
- Bondhead 90° (deep access) for ribbon or wire
- Frequency: 100 kHz*; alternative frequencies on request

Wire
- Al, Au, Ag, Cu, Pt: 12.5 µm – 75 µm** (0.5 mil - 3 mil)**

Ribbon
- Al, Au: 35 µm x 6 µm up to 250 µm x 25 µm**
  (1.4 mil x 0.25 mil up to 10 mil x 1 mil)**

Fine wire wedge-wedge loop design
- Loop length: 70 µm up to 20 mm (2.8 mil - 800 mil), depending on wire diameter
- Various loop form functions
  - Constant wire length
  - Constant loop height
  - Individual loop shapes
- Fine pitch 40 µm inline, 25 µm staggered/dual line (depending on wire and loop)

Footprint and weight
- 722 mm x 1250 mm x 1800 mm (W x D x H, excl. monitor and light tower)
- Weight: approx. 1350 kg

Media connectivity
- Compressed air (high purity)
- Vacuum
- 16A/230V AC
- Digital IOs
- USB ports
  - SMEMA connection
  - Profibus support

Manual and fully automated operation
- Standard components or individually adapted solutions
- Manual bonding station (with/without heating)
- Automated bonding station (with/without heating), multi-lane operation → lowest Cost of Ownership (CoO)
- Indexer / transport system
- Magazine lifts
- Visualization
- Integrated PLC controller

Options
- E-Box: visualisation system for control supported, reproducible adjustments of bondhead elements (patented)
- PiQC: Process integrated Quality Control by multi-dimensional signal analysis - integrated in Hesse Mechatronics’ Workbench
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You want more?
Contact us - we will provide a solution!

* exact range of frequencies on request
** depending on bondhead, application, wire
Hesse GmbH, founded in 1986 and based in Paderborn, Germany, develops and manufactures fully automatic ultrasonic and thermosonic wire bonders together with standard or customer-specific automation solutions for the semiconductor industry backend. Hesse GmbH is one of the world’s leading producers of wire bonders using the ultrasonic wedge-wedge technology and develops customer-specific production processes.

All relevant semiconductor manufacturers are among the worldwide clientel of Hesse GmbH. Distribution and service are performed from the headquarters or by subsidiaries in Hong Kong, the US and Japan and together with partners in over 30 other countries.

The core competencies of the company are mechatronic systems, ultrasonic technology, control engineering and the detailed understanding and knowledge of the processes and physical effects relevant in ultrasonic joining technology. In order to maintain and expand technological leadership, we conduct intensive research and development in all aforementioned areas.

Process support, development and consulting:
We support you in developing and implementing your individual process requirements. Our range of services includes:

- Sample bonding
- Pre-production prototype
- Design validation builds
- Small series production
- Module production
- Process optimization

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