

Bondjet BJ855

Fine Wire Bonder



Bondjet BJ855

High Speed Fully Automatic Fine Wire Bonder (Wedge-Wedge and Ball-Wedge)

The Bondjet BJ855 is the latest generation of fully automated fine wire bonders and expands the existing product portfolio of fine wire bonders. The Bondjet BJ855 is characterized by the following features:

- Wedge-wedge and ball-wedge bondheads
- Optimized pattern recognition (PR)
- Software features for the growing demand of connectivity and industry 4.0 (e.g. Hesse Bonder Network, remote control of PR, improved MES integration, ...)
- Hesse Assist Tools: load cell, bondtool detection, bondtool calibration without wedge gauge for operator independency

The Bondjet BJ855 meets the increasing demands of bonding and contributes to easy porting through smart functions such as the bondhead memory or the chip libraries. Typical applications are components in HF and RF technology, COB, MCM, hybrids, optical and automotive electronics. In addition to a standard configuration, Hesse offers automation concepts individually adapted for every application.

The Bondjet BJ855 defines the latest state of technological development compared to the competition and is benchmarked for:

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



Fine wire bondhead 45°

Fine Wire Bonder

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
- Optimized pattern recognition: image capture with new digital image processing and flash
- Hesse Assist Tools (option):
 - E-Box: patented solution for optimized tool change and programmable alignment marks for wedge and wire clamp
 - Automated bondforce calibration; a load cell prevents operator error and ensures robust processes
 - Innovative bondtool detection
- Automated bondtool calibration without wedge gauge
- Loop generator for individualized loops
- Wear-free components with Piezo technology
- Maintenance-free solid state joints
- Pre-setting of bondheads via EEPROM

Flexibility

- 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, depending on application and bondhead, e.g. wedge-wedge bondhead, 25 µm wire, 1 mm loop length, metalized wafer

Quality

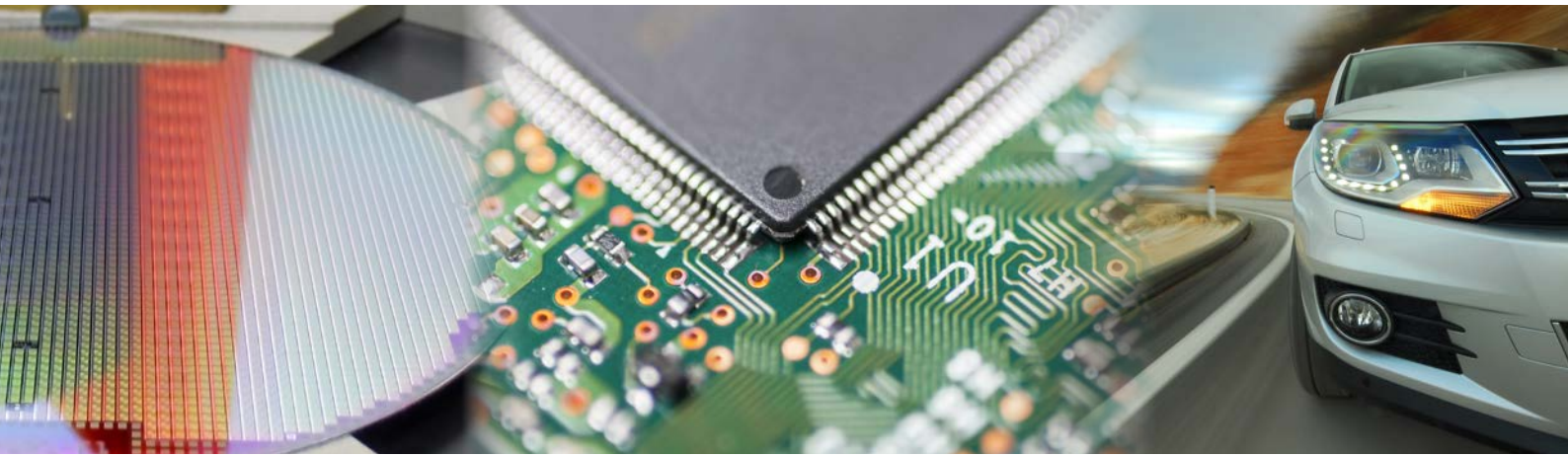
- Continuous real time monitoring of wire deformation, transducer current, frequency and impedance within programmable control limits
- Process integrated Quality Control PiQC: detection of further parameters by additional sensor system (e.g. friction) for 100 % quality monitoring in real time (patented); available as an option

Wedge-Wedge bondhead

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

Ball-Wedge bondhead

- Multi-level bonding according to Z axis stroke of 32 mm
- 11/19 mm capillaries
- Ultrasonic in preferred direction by bondhead rotation



Technical data at a glance

Working area

- X: 305 mm; Y: 410 mm
- Z stroke: 32 mm
- P rotation: 440°

Mechatronic bondhead

- Wedge-wedge bondhead 45°, 60°
- Wedge-wedge bondhead 90° (deep access) for ribbon or wire
- Ball-wedge bondhead

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 loop design

- Loop generator for individualized loops
- Loop form functions: constant wire length, constant loop height, individual loop shapes
- Fine pitch (wedge-wedge): 40 µm inline, 25 µm staggered/dual line (depending on wire diameter and loop)

Footprint and weight

- 740 mm x 1484 mm x 1912 mm (W x D x H, excl. light tower)
- Weight: approx. 1150 kg

Media connectivity

- Compressed air (high purity)
- Vacuum
- 16A/230V AC
- Digital IOs
- USB ports
- SMEMA connection
- Gigabit Ethernet (TCP/IP)
- 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
- Integrated operation in machine control (TwinCAT®)

Software options

- Hesse Bonder Network (HBN): complete line management, synchronization of data, easy integration of new machines via Plug & Produce, no server necessary
- PBS Server & Workbench 2.0: master programming, automatic backup system, remote functions: e.g. pattern recognition, line management, quality data, status display of consumables
- TwinCAT® Automation: integration of control software for automation in Hesse Bonder Interface
- SECS/GEM: integrated standardized server connection for automation and communication, handling via Workbench
- MES: interface to Manufacturing Execution Systems, integrated or customized implementation
- CSV Logger: storage of all machine and process data, e.g. bond positions etc.
- Login via USB stick
- Remote support

You want more?

Contact us - we will provide a solution!

* depending on bondhead, application, wire

HESSE

MECHATRONICS

Hesse GmbH - Your partner for ultrasonic and thermosonic wire bonders for all common wire dimensions in combination with standardized or customized automation solutions.

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.

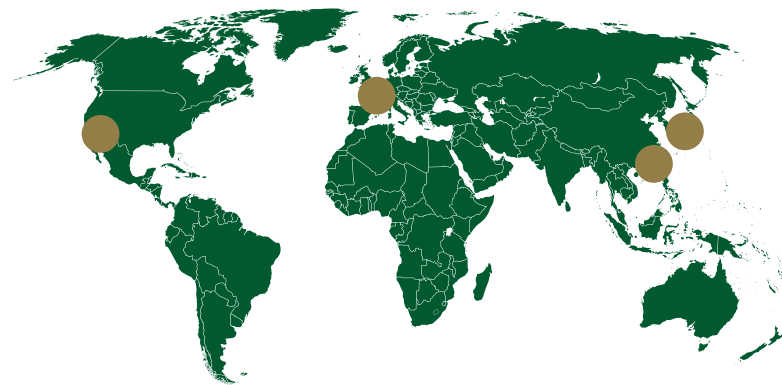
The core competencies of the company are mechatronic systems, ultrasonic technology, control engineering and the detailed understanding and knowledge of the processes and physical effects relevant in ultrasonic joining technology. In order to maintain and expand technological leadership, we conduct intensive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

Worldwide. Near you.



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The Bonding Experts.

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