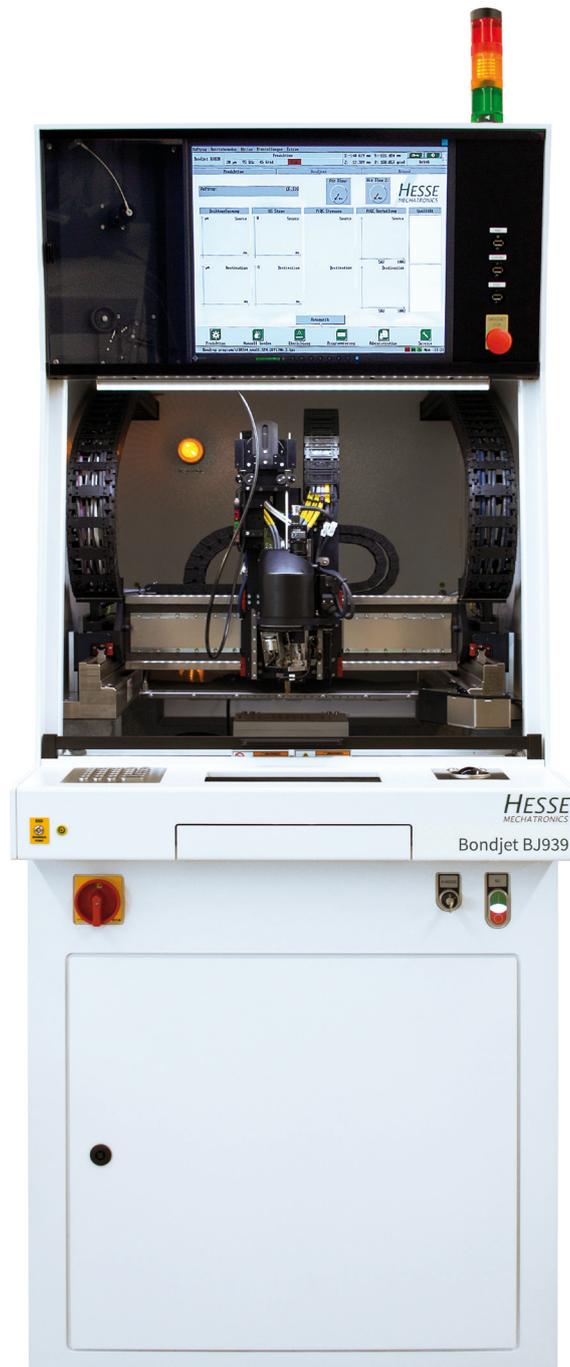


## Bondjet BJ935/9

Heavy Wire Wedge Bonder



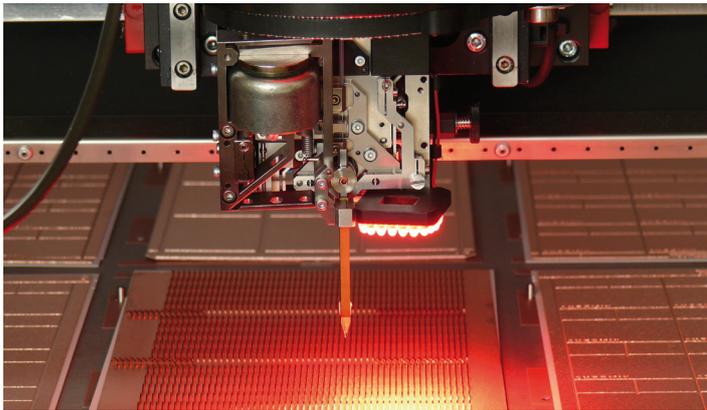
# Bondjet BJ935/BJ939

## Fully Automatic Heavy Wire Wedge Bonder

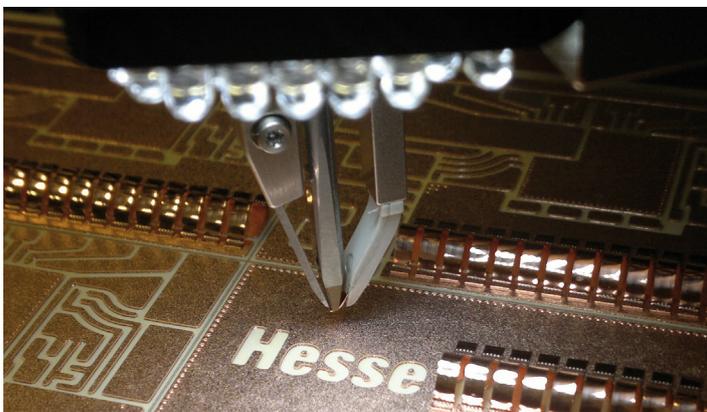
Bondjets BJ935 and BJ939 are ultrasonic wedge-wedge bonders developed for the fully automated processing of a wide range of substrates, chips and other materials. The systems can be used as a fully automatic machine or operated manually. Hesse offers the only available solution on the market of handling wires from 50 µm up to 600 µm with only one bondhead.

Outstanding features are high speed and the largest bonding area. A change from aluminium to copper can be realized within minutes.

The Hesse GmbH, as technology leader, has designed the only heavy wire bondhead with a non-destructive pulltest and a unique transducer integrated sensor for 100% quality monitoring in real-time. Advanced features available on the Bondjet BJ935 and BJ939 are designed to meet your present and future requirements and greatly enhance productivity.



HBK07 Heavy Wire Bondhead



RBK02 Heavy Wire Bondhead Copper

## Heavy Wire Wedge Bonder

### Your benefits in the spotlight

#### Advanced features and process advantages

- 50 µm – 600 µm bondhead for Al, Cu, AlCu (2 mil - 24 mil)
- Precisely programmable bondforce actuator: wire 2500 cN adjustable, ribbon/Cu 5000 cN adjustable
- Cutting methods:
  - Active Cutting: repeatable, precise, programmable cutting depth
  - Air Cut: No impact on surface, e.g. for highly sensitive chips because of „touch-free“ cutting
  - Passive Cutting
- E-Box: patented solution for optimized tool change and programmable alignment marks for guide, cutter and bond wedge

#### Flexibility

- Working area :
  - BJ935: 254 mm x 244 mm (10" x 9.6")
  - BJ939: 350 mm x 560 mm (13.8" x 22.0")
- Flexible use of the large working area, e.g. vacuum-clamping of up to six 5" x 7" standard DCBs
- Maximization of throughput by automation with two or more parallel lanes

#### Quality

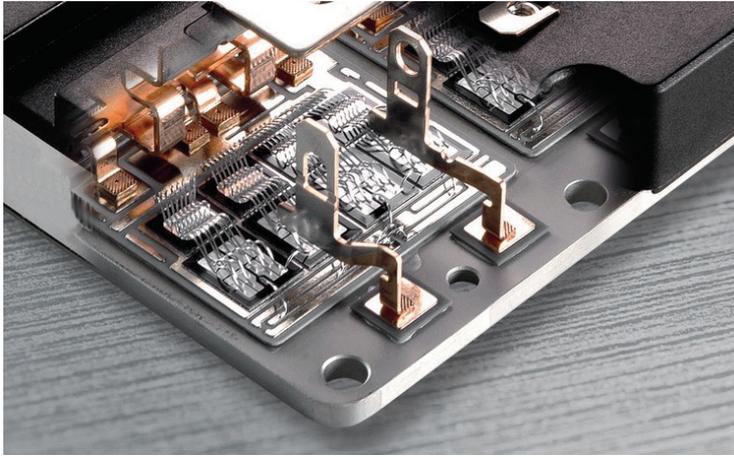
- Continuous real time monitoring of wire deformation, transducer current and frequency within programmable control limits
- Process integrated Quality Control PiQC - integrated in Hesse Mechatronics' Workbench: detection of further parameters by additional sensor system (e.g. friction) for 100% quality monitoring in real time (patented)
- Remote pull function on PiQC threshold value for optimized cycle time; up to 30 % safe on equipment
- Integrated, non-destructive pulltest for wire and ribbon
- PBS200 – server for central data management
- BDE, traceability – in PBS200 integrated XML interface or customized implementation
- SECS/GEM – in PBS200 integrated standardized server connection for automation and communication
- MES – interface to Manufacturing Execution Systems, integrated or in PBS200 realized, customized implementation

#### Speed

- Highest UPH due to linear motors

#### Heavy wire bondheads

- Heavy wire and ribbon bondheads for aluminum, copper and AlCu
- Maintenance-free solid state joints
- An intelligent bondhead connecting system with integrated memory stores all calibration data and enables bondhead replacement in a few minutes
- Wire clamp for loop shape control is standard on all bondheads, optionally equipped with non-destructive pulltest



## Technical data at a glance

### Working area

- BJ935: X: 254 mm (10"); Y: 244 mm (9.6"); Z: 70 mm (2.75")
- BJ939: X: 350 mm (13.8"); Y: 560 mm (22.0"); Z: 70 mm (2.75")
- P-rotation: 440°

### Mechatronic bondhead

- HBK07 (Frontcut, Backcut)
- HBK08 (Backcut), option: loop-former
- RBK01 Ribbon (Frontcut)
- RBK01 Copper (Frontcut, Backcut)

Frequency: 60 kHz; alternative frequencies can be realized by our own transducer construction

### Cutting methods

- active, passive, air cut (for frontcut)

### Wire

- Al, Cu, AlCu: 50 µm – 600 µm (2 mil – 24 mil), application-dependent

### Ribbon

- Al, Cu, AlCu: 250 µm x 25 µm up to 2000 µm x 400 µm (Cu: 200 µm)  
(10 mil x 1 mil up to 80 mil x 16 mil)

### Ultrasonic

- Digital ultrasonic generator with PLL (Phase-Locked-Loop), internal frequency resolution <1 Hz
- Ultrasonic power output : 100 W programmable

### Small footprint – high performance

- BJ935: 670 x 1310 x 1897 mm (26.4" x 51.6" x 74.7"), appr. 1100 kg
- BJ939: 750 x 1560 x 1897 mm (29.9" x 61.4" x 74.7"), appr. 1400 kg

### Media connectivity

- RJ45 (2 x)
- Compressed air (high-purity)
- Vacuum
- 16A AC
- Digital IOs
- USB-Port
- SMEMA

### Various loop form functions

- Reproducible loop geometrics by wire guide appropriate for the material involved (e.g. pulling wire buffer)
- Constant wire length and loop height
- Mechanically demanding loop geometrics by parameterization and individual wire clamp application

### Manual and fully automated operation

- Standard components or individually adapted solutions
  - Manual bonding station
  - Indexer / transport system
  - Bonding station
  - Magazine lifts
  - Visualization
  - MES-Interface
- Integrated PLC controller
- Standard SMEMA input & output ports
- Profibus support

### Options

- E-Box: patented solution for optimized tool change and programmable alignment marks for guide, cutter and bond wedge
- PiQC: Process integrated Quality Control by multi-dimensional signal analysis - integrated in Hesse Mechatronics' Workbench
- PBS200 – server for central data management, handling via Workbench
- BDE, traceability – in PBS200 integrated XML interface or customized implementation
- SECS/GEM – in PBS200 integrated standardized server connection for automation and communication, handling via Workbench
- MES – interface to Manufacturing Execution Systems, integrated or in PBS200 realized, customized implementation

# HESSE

## MECHATRONICS

Hesse GmbH - Your partner for ultrasonic and thermosonic wire bonders for all common wire dimensions as well as ultrasonic flipchip bonders 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 as well as ultrasonic flipchip 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 and the thermosonic ball-wedge technology and develops customer-specific production processes.

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

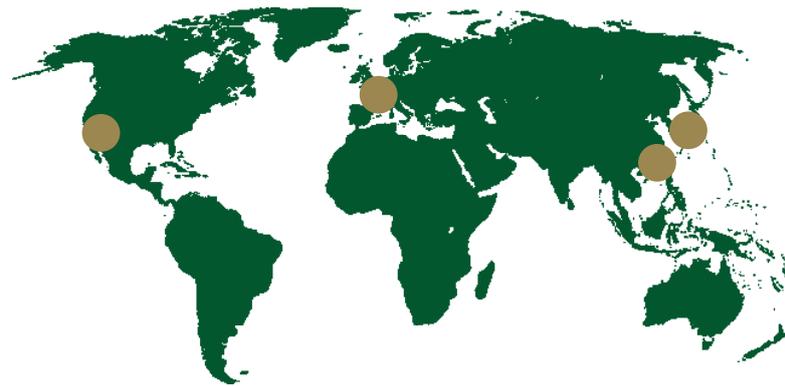
The core competencies of the company are mechatronic systems, ultrasonic technology, control engineering and the detailed understanding and knowledge of the processes and physical effects relevant in ultrasonic joining technology. In order to maintain and expand technological leadership, we conduct intensive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