

# Wire bonding machine

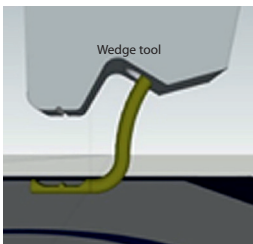
## Wire bonder TPT HB16

### DESCRIPTION

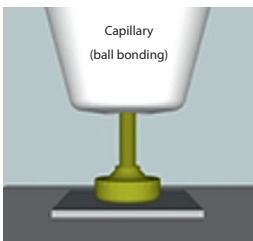
Wire bonding is a micro-welding technique for electrical interconnection of the sample substrate structures and semiconductor chip thin metallic layers. Contact between the sample surface and pure gold, alloyed aluminium or copper wire is provided by three main methods: ultrasonic, thermocompression and thermosonic bonding. The welding process is realized by wire attached to the substrate by bonding tool at the end of ultrasonic transducer, which is getting closer to certain distance to the sample surface. To achieve enhanced welding capability, sample is heated up to certain temperature being at the range from 20 °C to 250 °C.



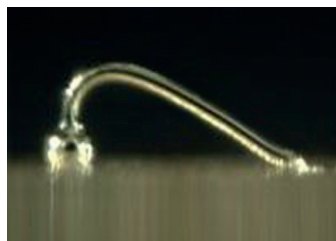
### WEDGE BONDING VS BALL BONDING



- Bonding on very small bond pads
- Flat and long loops possible
- Gold and aluminium wire
- Aluminium wire without heating



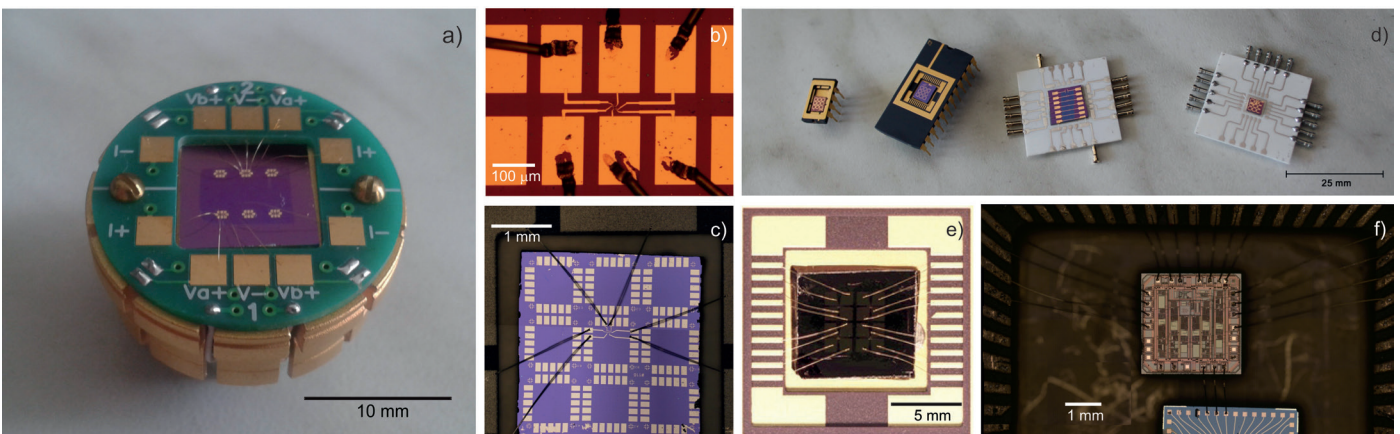
- First bond connection more stable
- Bonding may be softer
- Wire moves vertically (for big height step)
- Gold and copper wire possible



### SPECIFICATION

- ultrasonic, thermocompression and thermosonic capability
- sample size up to 100x150 mm
- ultrasonic transducer (62 kHz, up to 2 W power)
- sample (chip) holder heated up to 250 °C
- bonding tool heatable
- gold or AlSi wires with diameters from 17 μm to 75 μm
- ribbon compatible up to 25 μm × 250 μm
- adjustable wire loop between first and second bond
- motorized holder movement in Y and Z axis
- software allows possibility to store up to 100 recipes

### APPLICATIONS



Hall bar structures bonded into the puck holder (a) for low temperature measurement and DIP packages (b, c) for resistivity measurements. Samples with graphene (d), nanowires (e) and sensors (f) bonded through gold wires to the variety of packages and chip expanders.

### MORE INFO

Web: <http://nano.ceitec.cz/wire-bonder-tpt-hb-16>

