

## THIN WIRE 30°, 45°, 60°, DEEP ACCESS 90° BOND HEAD

### THIN WIRE BOND HEAD WEDGE-WEDGE 30°, 45° AND 60°

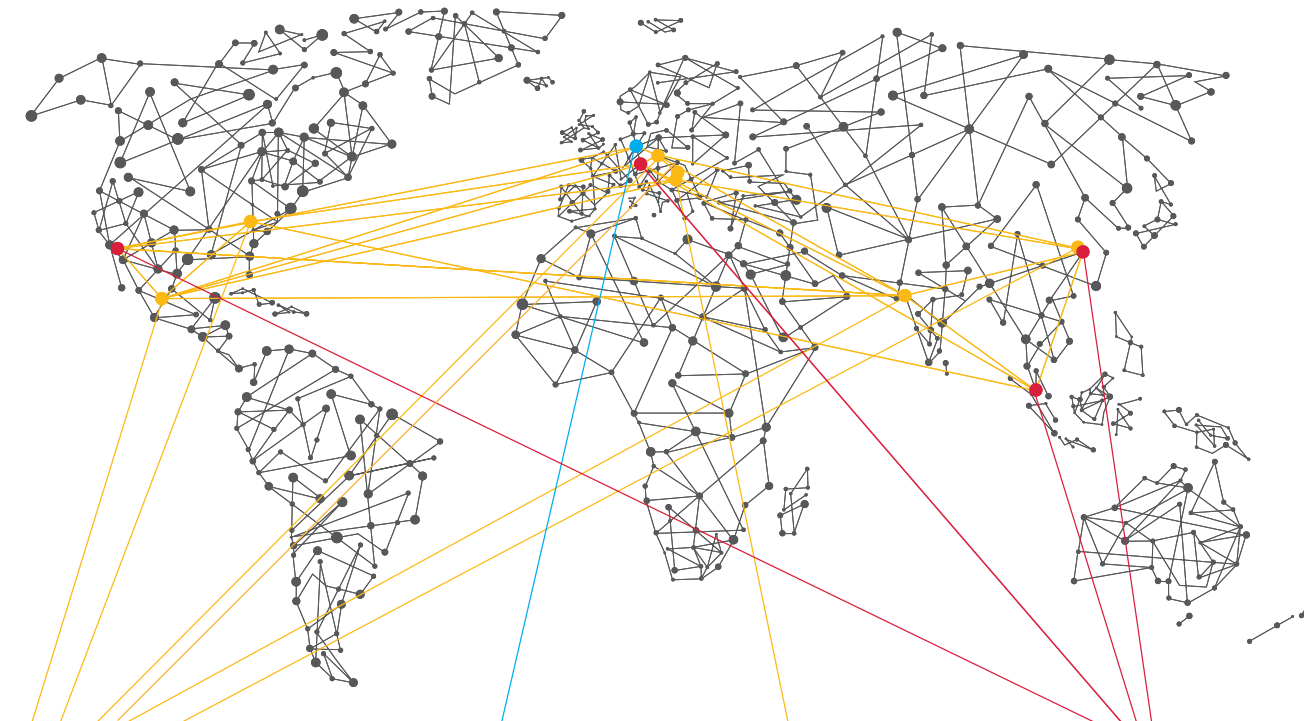
- **Wire feed angle**  
30°, 45° or 60°, convertible
- **Wire diameter**  
- Standard 17.5-75 µm (0.7-3 mil)  
- Optional 12.5 µm and 100 µm
- **Wire material**  
Al, Au, Cu, Pt, Pd
- **Wire spool**  
- 2" diameter  
- Wire end detection using CCD sensor
- **Cutting process**  
Table tear or clamp tear, programmable
- **Bond tool**  
1", all common tool manufacturers
- **Touchdown sensor**  
- Inductive sensor with linear working range  
- Anti-crash hardware sensor
- **Transducer frequencies**  
- 65 to 140 kHz  
- Largest range of transducer frequencies on the market  
- In-house F & K transducer manufacture over 25 years
- **Bond force**  
- 10 to 400 cN, programmable for each bond  
- Exact control of the bond force to 1 cN
- **Ultrasonic generator**  
- F & K, digital 30-250 kHz,  
- Resolution < 1 Hz
- **Bond head fast-change system**  
Proven, fast-change system with intelligent bond head recognition, enables exchange of bond heads in less than 15 minutes
- **Speed**  
- Speed up to 7 wires/sec (application dependent)  
- Welding time: Al-wire on metallised wafer: 25 µm 20 ms, 50 µm 40 ms

### DEEP ACCESS BOND HEAD WEDGE-WEDGE 90°

- **Wire feed angle**  
90°
- **Wire diameter**  
Standard 17.5-75 µm
- **Ribbon size**  
Al, Au: 6 µm x 35 µm (0.25 mil x 1.4 mil) up to 50 µm x 250 µm (2 mil x 10 mil)
- **Wire material**  
Al, Au, Cu optional
- **Wire spool**  
- 2" diameter  
- Wire end detection using CCD sensor
- **Cutting process**  
Table tear
- **Bond tool**  
3/4" and 1", all common tool manufacturers
- **Touchdown sensor**  
- Inductive sensor with linear work area  
- Anti-crash hardware sensor
- **Transducer frequencies**  
- 65-145 kHz
- **Bond force**  
- 10 to 400 cN, programmable for each bond  
- Exact control of the bond force to 1 cN
- **Ultrasonic generator**  
- F & K, digital 30-250 kHz,  
- Resolution < 1 Hz
- **Bond head fast-change system**  
Proven, fast-change system with intelligent bond head recognition, enables exchange of bond heads in less than 15 minutes
- **Speed**  
- Speed up to 2.5 wires/sec (application dependent)  
- Welding time: Al-wire on metallised wafer: 25 µm 20 ms, 50 µm 40 ms

## POWERFUL SYNERGIES AS „MEMBER OF STRAMA GROUP“

Together with our parent company, Strama-MPS, we integrate our wirebonders into complete assembly lines with other joining, assembling and testing stations. Our customers profit from the combination of our bonding and automotive expertise, „One-stop-shopping“, and the interface free quality of the complete package.



GERMANY, Straubing  
HUNGARY, Budapest

CHINA, Taicang

USA, Duncan

MEXICO, Puebla

INDIA, Nashik



CROATIA, Cerna  
Gradište



GERMANY, Osterhofen



GERMANY, Ottobrunn  
USA, Foothill Ranch

CHINA, Taicang

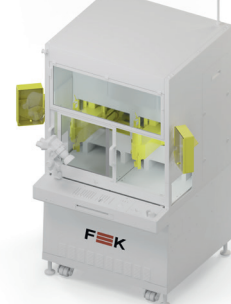
SINGAPORE

## THIN WIRE MACHINE MODELS

M17 S



M17 D



M17 L



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NEXT GENERATION OF SOLUTION.  
MADE IN GERMANY. MADE FOR YOU.



Version 10/2025

## Ultrasonic Thin Wire Bonder M17

F & K DELVOTEC - the Thin Wire Bonder specialist - delivers the perfect solution for any bonding challenge in the automotive, opto-electronics, hybrid technology, COB, MCM and HF technology industries.

M17 benefits from an innovative platform strategy with a number of work areas, whereby the all wirebond technologies and transducer frequencies can be deployed on the same machine base.

#### Advantages

- Integrated thin wire and deep access applications in a single machine platform through fast system change-over
- Solutions for any customer requirements from prototyping to series manufacture
- Ensures repeatable bond quality through patented BPC for real-time adjustment of the bond parameters with varying material surfaces
- Ensures process transparency through seamless integration in industry 4.0/AI procedures
- Shortens set-up times through intelligent pattern recognition



NOT JUST MACHINES.  
BUT BONDING SOLUTIONS.



## MADE FOR YOU - YOUR ADVANTAGES AT A GLANCE

### M17 S

- Smallest footprint on the market with maximum productivity
- Optimised scaling of your investment
- Sustainable technology through proven, exchangeable bond head principle
- Manual or automatic parts handling

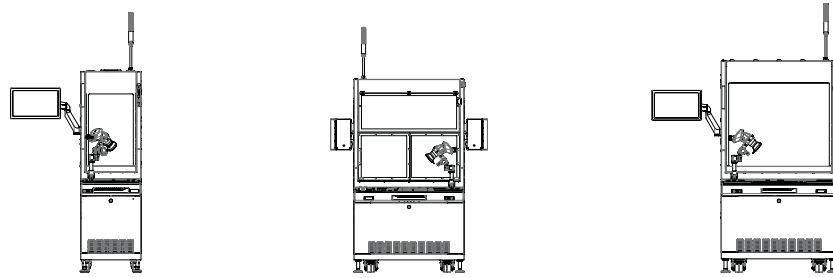
### M17 D

- Smallest footprint on the market with double the output
- Perfect for high-volume production
- Best TCO through combination of thin wire and heavy wirebond technologies
- Pin or belt indexer

### M17 L

- Largest work area on the market
- Flexible parts handling height, up to 500 mm
- Highest flexibility with the combination of manual and automatic parts handling:
  - Two manual work holders
  - Single track indexer with manual work holder
  - Dual track indexer with bond-off station

## THIN WIRE MACHINE MODELS



Working area	M17S	M17D	M17L
X	254 mm (10")	254 mm (10")	652 mm (25")
Y	152.4 mm (6")	152.4 mm (6")	350 mm (14")
Z	40 mm (1.57"), optional 60 mm (2.36")	40 mm (1.57"), optional 60 mm (2.36")	100 mm (4")
<b>Machine size</b>			
Width	553 mm	1073 mm	1073 mm
Height with/without signal lamp	2249 / 1721 mm	2283 / 1734 mm	2503 / 1954 mm
Depth	1135 mm	1135 mm	1237 mm
Weight	780 kg	1165 kg	1100 kg
Working height	SMEMA compliant 850-1050 mm		
Power supply	120 V +/- 10 %, 230 V +/- 10 %, single phase, 50-60 Hz		
Power	0.5 kW		
Compressed air	4-8 bar		
Vacuum connection	< -0.8 bar		

## MACHINE SPECIFICATION

### MACHINE SPECIFICATION

X-Y-axes	Linear encoder resolution better than 0,1 µm
P-axis	+/- 200° AC servomotor with absolute encoder, resolution 0.0035°
Z-axis	Optionally 60 mm (2.36"), AC servomotor with absolute encoder, resolution 0.5 µm
Positional accuracy	< +/- 5 µm @ 3 sigma, incl. PRU/Wire/Tool/Application
Repeatability on the product	< +/- 3 µm @ 3 sigma, incl. PRU/Wire/Tool/Application
Monitor	21" flat screen
Microscope	Stereo zoom microscope, adjustable lighting
Connections	SMEMA, USB, RJ 45, Digital I/O
Operating system	Real-time, Unix®-based multi-tasking OS
Certification	CE

### NETWORK CONNECTIVITY

TCP/IP/FTP data exchange	
SMEMA for in-line connections to other machines	
Communication standard SECS/GEM	

### PATTERN RECOGNITION

Pattern recognition unit	Cognex® Pat Max® System
Alignment correction	Flexsearch, single point recognition incl. phase angle, two point recognition, phase angle correction +/- 5 %
Camera	Moving CMOS-camera, 640 x 480 pixel
Resolution	2-30 µm per pixel, adjustable using different optics
Image size	Standard 1.2 mm x 1 mm up to 20 mm x 18 mm

### MANUAL WORKSTATIONS

4" x 4", 6" x 6", 8" x 6", 10" x 6", up to 650 mm x 350 mm (25" x 14")
Vacuum and / or mechanical clamping
Heated or unheated

### AUTOMATIC PARTS HANDLING

Pin indexer	Belt indexer
Leadframes, e. g. QFN, D-PAK, PDFN and other packages	Flat substrates, e. g. ceramic substrates, PCB or workpiece carriers
Leadframe length 152-324 mm, optionally < 152 mm	Variable product length, up to 650 mm without index steps
Leadframe width 18-105 mm	Product width up to 760 mm
Downset 3 mm	Parts handling height up to 15 mm
Repeatability +/- 15 µm @ 3 sigma, linear motor accuracy 3 µm	Can be combined with manual work station, optionally heated with 2 pre-heat stations

### MAGAZINE LIFT SYSTEM

F & K leadframe lifts, dual axes	Magazine width 24-115 mm	Height 94-200 mm	Length 154-244 mm, optionally 234-324 mm
F & K Substrate / boat lifts, single axis	Magazine width max. 240 mm	Height max. 300 mm	Length max. 240 mm
	Substrate width max. 160 mm	Substrate length < 150 mm or > 300 mm, Substrate widths > 160 mm are treated individually as special requirements	

## NOT JUST MACHINES. BUT BONDING SOLUTIONS.

### QUALITY TOOLS

#### BOND PROCESS CONTROL (BPC): What exactly are the advantages of the new BPC?

- Closed-loop-system for continuous monitoring and real-time control of the bonding parameters time, ultrasonic power and bond force
- Adjustment of the ultrasonic power to surface variations in the current process



<b>LEVEL 03</b>	<b>Guarantee Quality by Process Perfection</b> A sensor tracks the wire deformation continuously and the ultrasonic energy applied is controlled in real time according to previously defined reference values.	<b>MANAGE</b>
<b>LEVEL 02</b>	<b>Produce Quality by Process Monitoring</b> The process runs reliably within defined tolerances. By means of a data base statistical evaluations from the analysis of up to 636 process parameters per wire can	<b>PRODUCE</b>
<b>LEVEL 01</b>	<b>Select Quality by Defect Detection</b> The basic principle of bond process control: faulty components will be identified and can be rejected . .	<b>SELECT</b>

#### Tool inspection

- Graphical display of the expected positioning of wedge and wire clamp, using the pattern recognition unit
- Minimum set-up time with maximum traceability when changing the wedge

#### Traceability

- Link up to standard F & K or customer specific MES
- Link to an existing host
- For manual and automatic parts handling

#### Load cell

- Load cell and housing for fully automatic calibration of the bond weight

#### DRAG and BOND panorama pattern recognition

- Innovative self-scanning-system for maximum overview
- Intuitive user interface for generation of bond programmes

#### Barcode & DMC-Reader

- Fully automatic part recognition, recipe and process data assignment
- Available as flexible hand-held DMC-reader or fixed-position integrated unit

#### Transducer

- Optimised, tuned system comprising transducer and ultrasonic generator
- Continuous in-house development for 25 years ensures constant and outstanding quality
- Measurement of every transducer using extensive test procedures properly documented by the transducer laboratory

#### BOND ACADEMY: your advantages?

Our support for implementing your requirements and optimising your processes:

- Competent advice
- Determining the correct transducer frequency for the application
- Rapid prototyping
- Validation of product design
- Sample bond tests and pilot series manufacture
- Training your service technicians
- Ramp-up-support

