œrlikon
assembly equipment

Esec WB 3100*optima*

The bench mark wire bonder for gold and copper applications

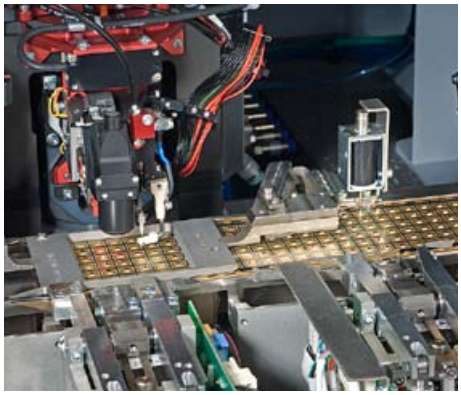
The future starts here

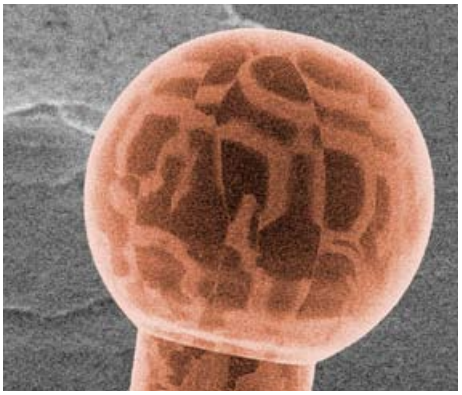
The Esec Wire Bonder 3100*optima* provides limitless levels of performance. Thanks to the unique pivoting bond head and many other cutting edge features, it consistently overcomes performance barriers, offering unprecedented levels of speed and accuracy.

This new Oerlikon Assembly Equipment bonder features a new dual clamp indexing concept, enabling optimum UPH output for high volume packages. In addition the new dual heater cartridges improve the temperature distribution for wide strips. Last but not least, the Esec Wire Bonder 3100*optima* offers the shortest conversion times imaginable and is ready in no time, for new production lots.

The 3100*optima* is laid out for all the latest packaging technologies. An optional extension kit enables this bonding platform to process copper wire of up to 2mil diameter.

Get yourself an Esec Wire Bonder 3100*optima* and you will own the fastest, most accurate wire bonder that gives you confidence, to be prepared for today's and tomorrow's packaging challenges.





Record UPH with new indexer

The indexer of the Esec Wire Bonder 3100*optima* is a completely new design, whereby two independent clamps in conjunction with the linear motor, enable fast material feed to and from the heating zone. With this dual clamp system, one of the clamps is pushing forward the bonded material, while at the same time the other clamp feeds the process zone. This ensures continuous material flow without any waiting time – offering a significant UPH increase with low pin count applications. For high pin count applications, gentle, smooth and precise material handling is achieved.

To prevent strip crash, a new wheel slip detection system is monitoring the material feed process. In the unlikely event of a collision between the strip and the output magazine, such an occurrence would immediately be detected by the system – thus preventing bonded strips from being damaged.

The redesigned heater incorporates two heater cartridges to improve the temperature distribution for wide strips. With this new feature a uniform heat profile over the entire bonding area is established, reducing process variations and ensuring highest yields.

Fastest copper and gold bonder

The Esec Wire Bonder 3100*optima* can be equipped with an optional copper wire kit, enabling up to 2mil copper wire bonding and covering all known ranges of FAB (Free Air Ball) to wire diameter ratios. The unique and specially designed ceramic housing around the sparking zone with the integrated electrode offer six key advantages

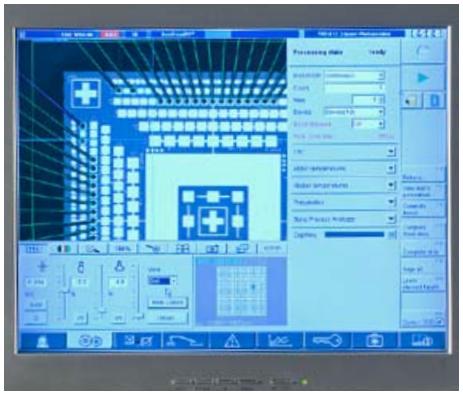
– perfect FAB formation
– no surface oxidation
– easy wire threading
– simple electrode adjustment
– low gas flow consumption
– long term stability

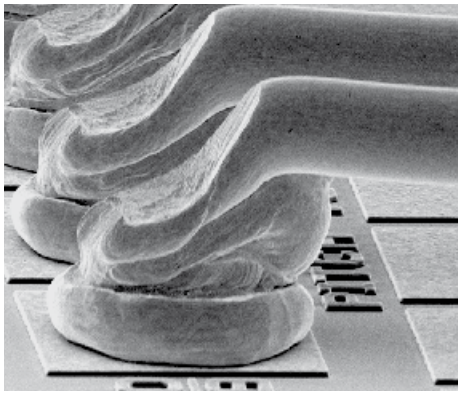
A further advantage of the Esec Wire Bonder 3100*optima* is the advanced software. It overcomes the known difficulty with copper bonding, when variations in the shielding gas flow might occur, resulting in undesired FAB variations. Gas working ranges can be selected by entering lower and upper gas flow levels and in case of any gas variations the system will reliably interrupt the production run.

This shielding gas monitoring process supports the full recipe portability of the process and the shielding gas flow parameters are stored in the recipe.

Another incredible feature is the unsurpassed change over speed of the 3100*optima*. Change overs of production runs from copper to gold wire bonding (or vice versa) can be done in a single user guided step.

The copper process capability of the 3100*optima* was developed in close cooperation with leading copper technology customers and increases the process quality in copper wire bonding drastically.





Ergonomic HMI and user-friendly GUI

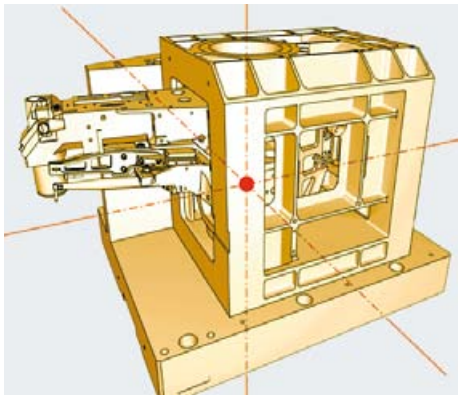
One of the highlights of this wire bonder's human machine interface (HMI) is its graphical user interface (GUI), designed according to the Sematech GUI Style Guide. Various help functions and on-screen explanatory video sequences enable the operator to work with ease. Also, thanks to the 3100 platform's multi-lingual capability, the best possible operator-independence is given. The ergonomic human machine interface is extremely user-friendly and more than 90% of all assist functions are directly accessible via keypad.

Optimal process capabilities

The Wire Bonder 3100*optima* offers a 35µm production capability and offers a copper bonding option. It can cope with the widest range of lead frame and organic substrate applications.
Thanks to the dynamics of its TY-technology, the 3100*optima* is able to sustain unprecedented placement accuracy over its entire speed and bond range. Outstanding mechanical and software innovations enable the bonder to master the most demanding process tasks like ultra low-loops, stacked-die and low-k applications.

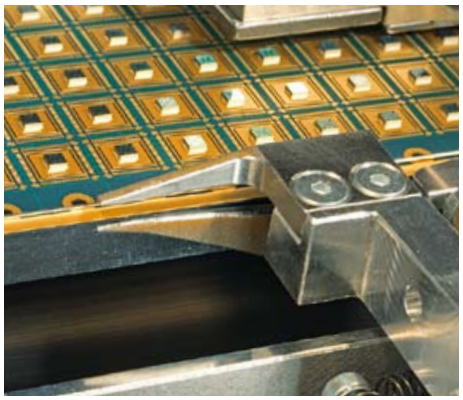
High speed TY-technology

The well-known high performance of the TY-technology with its pivoting principle just needs a small amount of energy to accelerate and decelerate the bondhead. Combined with the perfectly balanced axes design (where all motor forces are in line with the system's center of gravity) hardly any vibrations occur which is the key to the unsurpassed accuracy at high speed. Assembly Equipment's unique air bearing technology is maintenance-free and a prerequisite to the speed and accuracy of the Wire Bonder 3100*optima* and to it's minimal maintenance cost and down time.



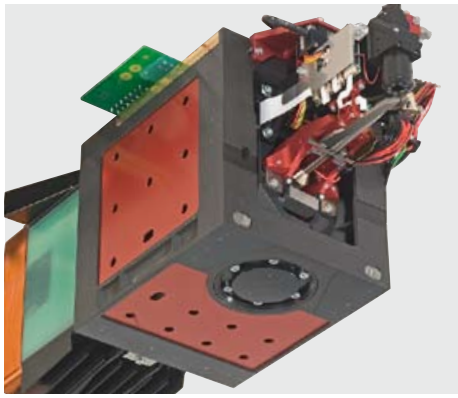
Speed and accuracy

With the improved design of the material feeding and its dual independent clamp system, the 3100*optima* enables optimum output with high volume packages. The newly introduced dual heater cartridge ensures uniform temperature distribution over the entire bond range even with wide strip applications. Both these features in combination with the high acceleration of the bond head make the 3100*optima* the fastest wire bonder for high volume packages and for ultra fine pitch, high-end devices.



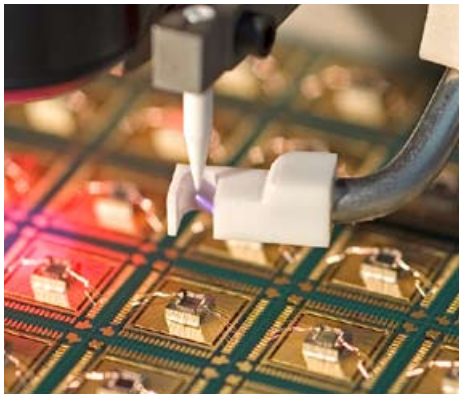
TY-technology and reliability

The Esec Wire Bonder 3100*optima* with it's proven, air bearing technology is laid out to handle ever increased performance steps. The maintenance free bondhead with its programmable focus and the improved force control ensure the widest process capability for tomorrows packaging applications. Customer quotes like this make us very proud: "We are especially impressed by the extraordinary stability, the unsurpassed reliability and recipe portability of the 3100*optima*."



Copper bonding

The Esec Wire Bonder 3100*optima* is ready for exciting future bonding applications. It can be equipped with an optional copper kit that ensures best performance and reliability for copper bonding applications as well. The optional kit monitors the shielding gas flow and interrupts production in case any variations in the shielding gas flow would occur. Thus enabling the most economical copper production runs imaginable.



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