ERSA, the global technology leader in selective soldering equipment, introduces its newest addition to their product line, a unit, which answers to the needs of modern manufacturing methods. The ECOCELL system operates according to the Toyota principle, with the flow of the printed circuit boards being in the counter-clockwise direction. This U-flow arrangement is ideal for installation as production islands, but, if considered beneficial, it can also be integrated and operate in a more traditional layout.

In the ECOCELL, high throughput and high flexibility are no longer contradictory terms. With two integrated preheaters, up to 4 boards can be processed simultaneously, and dual solder bath systems offer the possibility to efficiently process multi-up panels. Another feature is - for both the minwave as well as the multiwave baths – the possibility to use different alloys in the two baths. This function, together with the possibility to perform maintenance or setup on a multiwave bath, while the other bath is operating, reduces downtime to an absolute minimum.

As in all ERSA selective soldering systems, the ECOCELL incorporates the proven precision spray fluxing system. With the integrated spray jet control, the flux deposition on the board, in either single point or track, is effected with high repeatability and high quality.

The short wave IR preheaters, mounted below the boards, can optionally be upgraded with top-side convection preheaters. Thus combined, they assure a thorough and homogeneous temperature distribution through even the most heavy and complex boards. A further optional convection preheater over the miniwave bath will maintain the board temperature during the solder cycle at the required level.

In the solder modules, the “peel-off” effect developed by ERSA for their process of soldering at 0°C, virtually eliminates bridging and assures a very low ppm level of defects. In both the miniwave as well as the multiwave bath, induction pumps are used to deliver the solder. For this reason, both processes are very low in maintenance.

The intuitively operated system software guarantees effective programming, and it records all production parameters relevant to traceability as per the ZVEI standard. The CAD-Assistant allows for extremely quick and simple offline programming.
Dimensions (basic machine):
- Length: 2580 mm
- Width: 1940 mm
- Height: 1600 mm
- Weight: ca. 1100 kg

Painting:
- RAL 7035 / RAL 7016

Conveyor system:
- segmented chain conveyor for PCB transport without solder frame
- PCB width (single track): 63.5 – 356 mm
- PCB length: 127 – 356 mm
- PCB top side clearance: max. 120 mm (measured from PCB bottom side)
- PCB bottom side clearance: max. 60 mm (subject to the soldering joint position)
- Clearance from PCB edge: 5 mm
- Conveyor height from floor: 850 / 950 mm ± 25 mm
- Conveyor speed: 2 – 10 m/min
- Mask / PCB weight: max. 8 kg

Flux module:
- Type: high-precision spray fluxer
- Positioning system: 2-axis (XY), servomotor driven
- Flux storage tank: 2 l
- Positioning speed: 2 – 400 mm/sec
- Positioning accuracy: ± 0.25 mm spray width: 2 – 8 mm (130 / 270 µm inner nozzle)

Solder module:
- Type: stainless steel solder pot, integrated in a 3-axis positioning system (XYZ), servomotor driven
- Solder nozzle: single-point high-precision solder wave
- Smallest nozzle diameter: OD ø 4.5 mm (further nozzles on request)
- Solder nozzle height: max. 5 mm
- Clearance from PCB edge: min. 3 mm
- Solder volume: ~ 13 kg (Sn63Pb); ~ 12 kg lead-free
- Solder temperature: max. 320 °C
- Warm-up time: 75 Min. (bis 280 °C)
- Positioning speed: XY: 2 – 200 mm/sec; Z: 2 – 100 mm/sec
- Soldering speed: 2 – 100 mm/sec
- Positioning accuracy: ± 0.25 mm

Preheat module: (basic machine)
- Type: Bottom side heating with short wave length IR heaters
- Power: max. 10.4 kW
- Temperature range: 0 – 200 °C / 0 – 392 °F

Nitrogen technology:
- Nitrogen supply: to be supplied locally
- Nitrogen injection: N2-cover over the solder bath
- Required pressure: 3 bar
- N2-consumption: approx. 1.5 m3/h
- Required particle cleanliness: 5.0

Pneumatic system:
- Compressed air supply: to be supplied locally
- Required pressure: 6 bar
- Consumption: < 5 m3/h

Control:
- PC-based SPS
- Process visualization
- Input of all process parameters
- 7 day time clock
- Machine status control
- Password function
- Recording of production-, process- and traceability data

Electrical data:
- Power: 5-wire system, 3 x 230/400 V, N, PE
- Power tolerance range: +6 %, -10 %
- Frequency: 50 / 60 Hz
- Power consumption: 18 kW (basic machine)
- Amperage: 34 A (basic machine)
- Max. fuse rating: 3 x 80 A (slow blow) (basic machine)

Exhaust rating (basic machine):
- Exhaust volume per stack: approx. 150 m3/h / 196.2 yd³/h
- Exhaust stack: 1 stack, 150 mm O.D. each

Environmental specifications (operation):
- Ambient temperature: 0 – 35 °C
- Noise level: permanent sound level: < 60 dB (A)