

PV-module bus-bar contacting

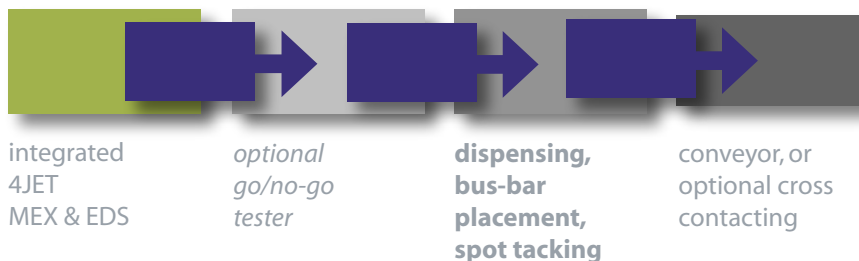
gluing
US-welding
soldering

Product performance

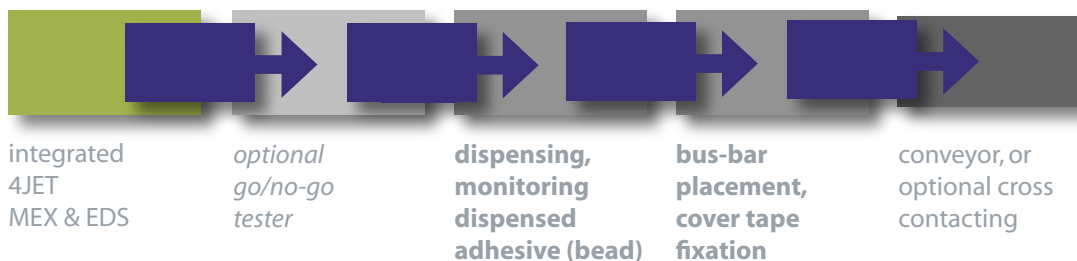
- gluing - conductive adhesive/adhesive tape: servo-controlled dispenser and unreeling heads spot tacking of adhesive or cover tape for bus-bar vs. roller fixation (~1N)
- repeat accuracy of bus-bar placement: +/- 0.15 mm (gluing, welding), +/- 0.2 mm (soldering) integrated solution with 4JET's MEX (molybdenum exposure) and EDS (laser edge deletion system) available automated placement of contact ribbon (bus-bar) with 50 mm [2 in.]/sec. for cycle time of <60 sec. additionally featured processes: inductive soldering, ultrasonic soldering
- ultrasonic welding: metallic connection (CuAl, Cu, Al on Mo vs. Al on Al) sonotrode friction power up to 300 - 500 W; frequency 40 - 50 kHz; welding pitch 10 - 30 mm

Exemplary layouts

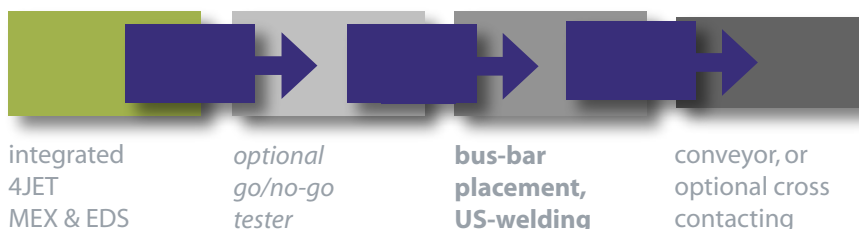
1) bus-bar contacting with conductive adhesive



2) bus-bar contacting with adhesive tape



3) bus-bar contacting by ultrasonic welding

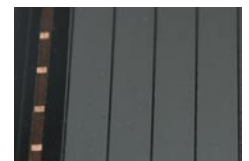


Processes

gluing



US-welding



inductive soldering



US-soldering

