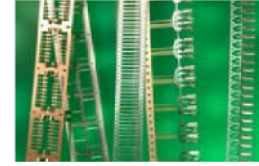




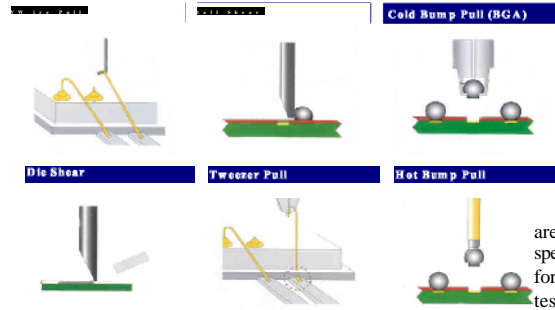
Precision Stamping for all applications in reels In-house plating including selective Full design and tooling in-house Plastic overmold capabilities Special plating for Lead Free apps

**SENSORS
HEAT
SINKS**



Batten & Allen has a major commitment to precision stampings for all of the electronics industry. They provide contracted stamping for many companies and well as a line of lead frame. They welcome development of new precision stamping products and can supply high volumes as well as prototypes. In-house plating ensures the final product is totally under their control. Selective plating including gold ensure the proper surface for each section of the stamping. Consider reel format to save cost on high volume jobs.

SENSORS-Special heavy stock becomes both the circuit and the contacts when over-molded. B&A can supply overmold in reel format.
HEAT SINKS: Thick copper is both heat spreader and has circuitry on top surface for mounting multiple die on same substrate. Can be supplied in reel format for high volume automation. www.batten-allen.com



With over 6000 machines in the work place, Dage is a leader in the Bond Test The new HS4000 promises to add to the fame with the ability to shear at high to simulate the failure with drop testing. All data is collected and transmittable records of the test. Heated stages allow for temperature cycling correlation www.dage-group.com

arena.
speed
for
tests.



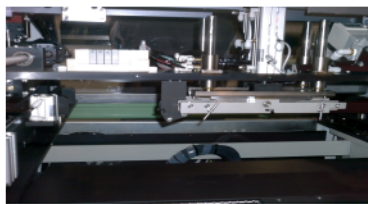
Sony Manufacturing Systems America, Inc

High speed **Rotary** placement head
Patented Bi-directional design
Second head for larger components
Over 3000 units in China production
Narrow modules "train" to high Volume
Sony SMT equipment now includes
AOI and Stencil Printers



CELLULAR MOUNTER

12 Nozzles



Sony is a familiar name and they bring their expertise to the Surface Mount market with proven production machines developed over the last 20 years. They have over 3000 sets in China, over 300 in North America and over 500 in Japan as part of a world wide presence. They feature speed, reliability and can offer full software capability and features such as autocalibration. The machines have a small footprint and can be connected by forming a train without the need for conveyors between modules. They have a full service capability in place supporting the North American market and a better cost per placement than other machines for the production market. Our IPC placement speed is closer to rated because of De-Rate Control Design

The new V-200 does inline post reflow and samples post print with Sony megapixel camera technology and telecentric lens. Sony looks for shape and position and then inspects each lead for fillet. P850 Stencil Printers with robotic stencil-wipe prints accurately and changes over quickly. Everything is online and talks to your network. www.sonymsms.com



Complete line of Wire Bond equipment Features manual and semiautomatic systems Manual Die bond and bond pull test equipment Sales and Service of West-Bond equipment



WestBond has supplied innovative equipment for Wirebonding since 1966 and is maybe best know for their patented single input X - Y - Z micromanipulator. WestBond offers manual and semi auto bonders convertible to wedge or ball bonding, wire pull and die shear testers, manual die bonders and support of their equipment. The equipment is widely used for development of technology and at universities. The equipment enhances the operator skill to quickly and repeat ably make special devices such as deep access cavity bonds and multiple loop stitch bonds. A full range of work holders, microscopes and lighting compliment the machines. www.westbond.com

CRT Lines-Description of Differences

C h e p a u m e --Electroformed Stencils
 --Fine pitch solder-ball printing
 --Exceptional Solder paste release from stencil



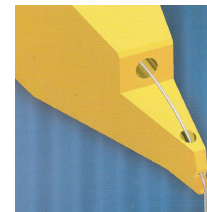
Die Bonder- Semi and Auto
Bare chips, flip chips, components
Waffle Pack, tape and reel, Wafers on tape
Dispense adhesive or underfill
Thermal and ultrasonic bond also
Multiple Wafers – Die stack – one pass inline



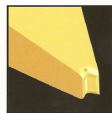
EMA features the new MAT 6400 semiautomatic die bonder for epoxy, eutectic and flip chip attachment. Multi Chip Module design. All new windows software and complete update of the mechanical and electrical systems. Dispense material and place devices to very high accuracy. Easily changed from one function to another. Also Automatic load and unload of substrates. Pick from wafers. www.MAT-ltd.com



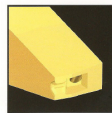
DeWeyl supplies bonding tools for all types of wedge bonding applications and pickup collets for die placement. Ceramic coating and special tool designs have made DeWeyl stand out in the marketplace. They can modify current designs or create new designs for specific applications. Besides custom designs, Rapid response has been their other goal in the market.



FOR MANUAL CR STYLE W/GW FOOT

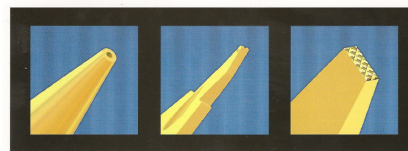


FOR ROTARY BONDING SIVG STYLE W/V-GROOVE FOOT



FOR AUTOMATIC CL STYLE W/V-GROOVE FOOT

INNOVATIVE BONDING SOLUTIONS FOR TODAY'S APPLICATION DEMANDS



Deep Access
 W/A8D
www.DeWeyl.com



Best Print Rep e a b i l i t y
Patented Vibrating Squeegee
Our Vision Inspect replaces AOI Bottom Stencil
Squeegee wipe –clean Manual to inline automatic versions



Milara (Then HTI) pioneered the solderball printing on Semiconductor Wafers for Flip Chips. Today, Milara supports printing on Semi Wafers and other special package substrates. Milara offers flip chip bump printing with stencils and solder fill of etched emulsion wafers. The showed a completely automatic emulsion bump fill from FOOP (Clean room cassette) with a robot loading the printer, transferring to a Vapor Phase reflow of the solder paste and robot transfer to a emulsion and flux removal system and robotically back to a FOOP. The handle wafers up to 12" dia. Milara now offers this precision capability on PC board printing with Vision Alignment. The video microscope makes a good print on first board from a new stencil. The vision aligns the rest of the boards to the same precision. Milara has solutions for dual wet prints in the same machine. www.milara.com

AIC
 Dist for

IBL

IBL Vapor Phase – Batch or true Inline
@ 230C uses current Components for Lead Free
IBL Solved Vapor loss cost with doors -- Less than N2 cost
Meets deg/min profiles for Lead Free components
Even do Vacuum soldering with vapor phase



IBL offers cost saving due to patented control of vapors. This gives control of heating rates on the board to meet any required profile. Second cost saving comes from using current components at 230 temperature rating required from convection on Lead Free. LF Convection requires new components for 260C rating and life-testing of materials represents the hidden cost and risk of LF. All systems are batch with doors separating the load, preheat and vapor chamber. Dual air lock is the clue to vapor recovery that leads to low operation cost. IBL provides automated handling system that loads parts from conveyor and returns parts to conveyor after reflow.. Operational systems running in production for contract Manufacturing in the US for over 4 years. www.ibl-loettechnik.de

See www.CRTEchLLC.com for more info --- Member of IMAPS and SMTA