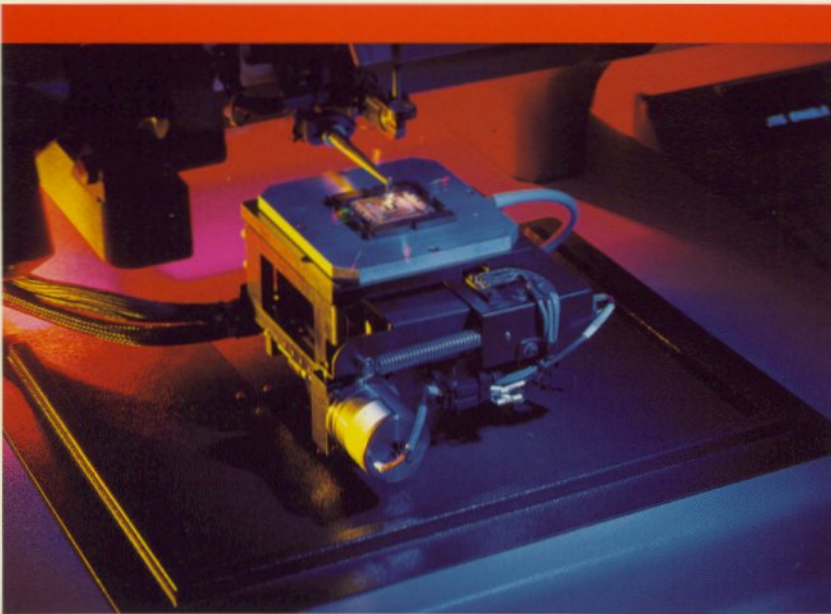


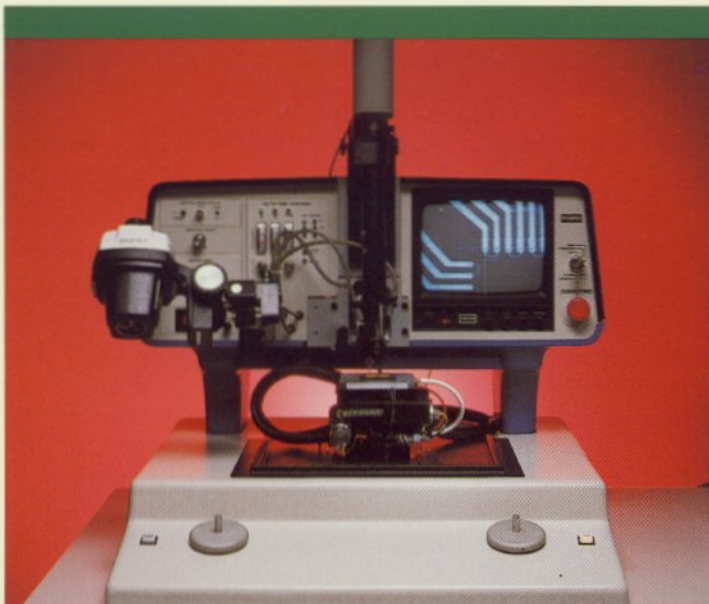
Model 2900A

SPT Bonder with Automatic ILB Stage

The Model 2900A gives you all the features of the Model 2900 with the benefit of a fully programmable, automated ILB and OLB workstage designed for improved production capability.



Auto-align ILB workstage gives you X, Y, and theta axis control with 0-360 degree detent capability.



Model 2900A with auto-align ILB workstage and pattern recognition features.

The 2900A auto align system for inner lead bonding consists of a pattern recognition system and a five-axis software-controlled auto stage. The tape or tape carrier and die are loaded onto the auto stage. The pattern recognition system locates two pre-programmed references on the tape and the die. The die is accurately positioned in X, Y and theta to match the tape leads. The bonder then bonds all pre-programmed bond locations on the die. The entire device may be automatically rotated if it is desired that the ultrasonic scrub is always parallel to the lead or if the bond tool design dictates rotation.

The 2900A outer lead bond automatic workstage incorporates this rotation feature and can be designed for a variety of package and board sizes.

Features of the Model 2900A include:

- Auto ILB workstage with software control of X, Y, Z and theta alignment (die pads-to-tape)
- Programmable force, time, ultrasonic power, Z speed, Z search speed, overtravel and bond tool lift height between bonds
- Digital pyrometer control of die pedestal from ambient to 250°C
- Digital servo controller for greater bonding accuracy, reliability and throughput
- Pattern recognition for automatic alignment of die and tape references
- Inner and outer leads can be bonded on the same system with optional ILB and OLB stages
- Programmable choice of constant current or constant voltage and switchable choice of 1 or 5 watts of ultrasonic power

Pulsed-tip and laser versions

The bonders shown here are the foundation for a series of related bonders:

- The Model 2910 series pulsed-tip bonders for reflow solder bonding, backed by over 25 years of Hughes experience in pulsed-tip bonding
- The Model 2920 series single-point laser bonder, the latest in laser ultrasonic bonding technology

The Model 2900A is the industry's proven choice for meeting today's high performance needs in flexible interconnect technology.

Summary Specifications

Model 2900

Model 2900A

Bond type	Thermosonic	
Cycle time	0.12 sec / bond (20 ms bond time)	
Alignment of workstage	Manual alignment: X,Y,Z and theta axis control for manual alignment of die to tape. Workstage detent 0° and 90°. Die nest temperature controlled from ambient to 250°C. Custom tape and die tooling for 35 mm and 70 mm tape format.	Automatic alignment: X-Y axis with .000098 in resolution and ± .10 in range. Theta axis with .02° resolution and ± 15° range. Detent with .12° resolution and 0-360° range. Workstage die nest temperature controlled from ambient to 250°C; Custom tape and die tooling for 35 mm and 70 mm tape format
Alignment	1 or 2 point with CCTV/electronic cross hair or automatic with pattern recognition	
Pattern recognition	Autocorrelation - programmable capture ± 180° rotation with default ± 15°, ± 0.030 in (0.76 mm) X or Y; 0.100 sec per reference typical Gate processing - edge detection	
Bond depth range	0.250 in (6.5 mm) with .437 in bond tool	
Z stroke	.50 in (13 mm)	
Bond force range	20-255 grams	
Ultrasonic generator	1 or 5 W (selectable), 60 kHz, phaselock controlled, programmable, dual mode (constant current/constant voltage)	
Servo system X-Y-Z	Digital coordinated multi-axis trajectory control	
X-Y positioner	4x4 in (100x100 mm)	
Optional	5x12 in (127x305 mm)	
X-Y-Z resolution	.0001 in (2.5 µm)	
Communications interface	Dual RS-232	
Utilities requirements	Vacuum; N ₂	
Power	115/230 Vac, 50/60 Hz, 20 A	
Dimensions	66x48x32 in (1676x1219x813 mm)	
Shipping weight	1200 lb (540 kg)	