

**Specifications: Model 7300E Series, Dual Head Die Bonders, Manual X-Y-Z**

*Last Revised 09/19/18 - microscope*

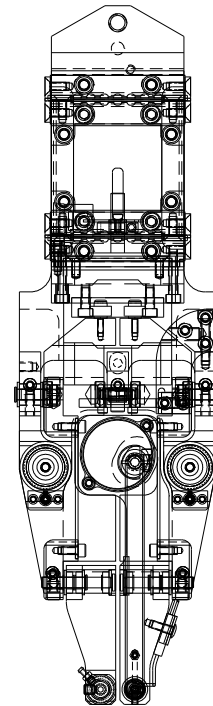
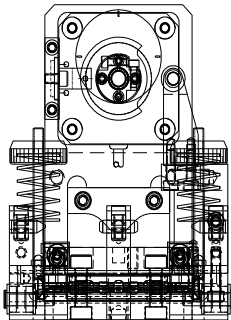
The significant advantages of the E-Series – gantry construction to allow unlimited work piece size, orthogonal motions rather than pivoted, individual axis brakes – are brought to West-Bond's line of Dual-Head Die Bonders by this completely new design. All of the B-Series models were included in the change-over, and all of their features preserved in their E-Series replacements. ESD protection is included as an added bonus.

Dual-Head Die Bonders use the heads alternately to pick up chips; then rotate, place, and bond them. Both pick-up and bonding can be done by different methods, changeable by detachable heads. The machine action to exchange heads places each one in view at the same use position, and by motions that are now also orthogonal rather than pivoted.

Embodied in this series is a new three-axis micromanipulator which allows all the machine mechanism to be arrayed above the work plane, so that there is now no limit to the size of a work piece. Each of the X, Y, and Z axes is straight-line and purely orthogonal, and each can be braked pneumatically on signal. Dual counterweights balance the pantograph arm and the tool support individually. The standard manipulator control arm locates the control point at table elevation; an alternate control arm and wrist-rest are available for use with very large work pieces to move the control point above the work plane.

An optical encoder built into the Z axis tracks vertical motion with a resolution of 0.001": Its signals are read to initiate head exchange and to signal other events of the bond processes. Chip rotation is slaved directly to an optical encoder control for manual alignment under microscope view. The tool heads can not only pick and place chips, but can dispense epoxy in amounts and at elevations programmed, can pick and place preforms before die bond, can apply mechanical scrub motion in X axis for eutectic die bond, can bond diode beam leads by ultrasonic energy, and can handle very delicate dice by

tweezers edge grip. The tools of these heads are heated by radiant heater under steady state control, when heat is appropriate. Work piece heat is provided by temperature controlled heated work holders specified separately.



All machine configuration constants and bond settings are programmable at the machine panel, prompted by a series of "screens" displayed on a 4-line 40-character, back-lighted LCD. Ten separate buffers of machine settings hold data for different devices. All programmed values are displayed during bonding. The software is complete with all variations required for the available tool heads, and requires only configuration when heads are exchanged.

Quite a large number of previously designed special work holders, both heated and unheated, are listed in the Work Holders Table of our Web Site: Those with “*Current*” Status can be ordered together with a machine order; those with “*AvailableNotStocked*” Status must be ordered separately. Work holders for new work pieces requiring custom design and fabrication will be quoted upon receipt of drawings and samples: These must be ordered on separate purchase orders. Work holders and Temperature Controller, when required, are priced separately.

Pick up tools and dispense needles are provided as appropriate to each model.

#### **Definitions of Models of this Series:**

- **Model No. 7367E.** This machine with heads for mechanized tweezers pick up and placement of die, and for vacuum pick up and placement of preforms. Tweezers clamping force is set and displayed by an included load cell calibration fixture, to hold the very low values necessary to place fragile die which would be damaged by other handling means. The preform head includes the standard means to rotate preforms at placement. Mechanical scrub motion for the bond head, driven by the transfer motor, is programmable in both amplitude and number of repetitions. Head lift motion is locked out pneumatically during scrub. Bond force is adjusted by a low rate coil spring. Tweezers assembly is Part No. 9922. The work platform accommodates a variety of work pieces or different work holders. The platform surface is adjustable vertically through a range of 0.625 in., 0.094 above and 0.531 below nominal work elevation, by a single thumbscrew and with Planarity Control, allows for approximately 2 degree variation in any direction by 3 point adjustment. The microscope required for this model is the Olympus SZ51-60E or SZ30-60E. Recommended for use with this is the “Luxuray” LED illuminator #10265.00. Neither microscope nor illuminator is included.
- **Model No. 7372E.** This machine with tool heads for dispensing epoxy and for pick up and placement of dice. Die rotation and radiant heat to the tool are both included. A third head with a vacuum capillary tool for pick and place of preforms is also included. Exchange of this head for the epoxy dispense head converts this machine from epoxy to eutectic preform bonding. Mechanical scrub motion for the bond head, driven by the transfer motor, is programmable in both amplitude and number of repetitions: Bonding force is adjustable by a low rate coil spring. The work platform accommodates a variety of work pieces or different work holders. The platform surface is adjustable vertically through a range of 0.625 in., 0.094 above and 0.531 below nominal work elevation, by a single thumbscrew and with Planarity Control, allows for approximately 2 degree variation in any direction by 3 point adjustment. The microscope recommended for this model is either the Olympus SZ51-60E with the “Luxuray” LED illuminator #10265. Neither microscope nor illuminator is included.
- **Model No. 7374E.** This machine adapted for ultrasonic bonding, with heat, of the tab leads of beam lead diodes. The right head is used for pick up of the tabbed die with provision for rotation at placement. The left head used for bonding the tabs is equipped with K~Sine Model 46-D Ultrasonic Transducer and with radiant heat to the bond tool. Built-in ultrasonic power supply is K~Sine Part No 6795, four Watts, dual channel. Settings of power and time program values are executed via an eight bit interface. Force is adjustable by force spring through a range of 10 to 175 grams. The microscope recommended for this model is either the Olympus SZ51-60E with the “Luxuray” LED illuminator #10265. Neither microscope nor illuminator is included.

#### **Features available for this Series:**

- **None**

#### **Required Services and Dimensions:**

Compressed air, regulated to 50 psig, is required. Connection is via ¼" tubing. Normal shop vacuum is required with connection also to ¼ in. tubing.

Electrical service required is 50-60 Hz, single phase, either 115 VAC or 230 VAC, selected automatically. A fuse and three-prong power cord connector are provided for 115 VAC: For 230 VAC, these must be changed to conform to local requirements. The electrical power supply, Part No 9997, is packaged in a separate enclosure 8.75"wide x 8.00" deep x 3.00" high.

"E" Series machine size is 24.00" wide x 21.25" deep x 11.625" high, exclusive of microscope, or 15.00" in height to scope eyepieces. Weight is 60 lb. uncrated, or 140 lb. accessorized and crated.