

[HOME](#) [WIRE BONDER](#)

260A Semi-Automatic Wire Bonder Overview

The Anza Model 260 wire bonder was designed to be a simple-to-use yet sophisticated machine. This model uses programmable software thus insuring that all bonds on the high power semiconductor devices are identical. In the Model 260, the tool moves by a digitally controlled motorized Z, while the work alignment is controlled by the operator with a choice of alignment by either microscope or video bonding. Bond heads are built around a 62 kHz ultrasonic transducer and provide full 3-way convertibility by the flip of a switch.

APPLICATION

Machines of this series are used primarily to stitch-bond a succession of parallel multi-arch wires, but can be used for bonding any program of shaped connections. They bond [bare or insulated](#) aluminum or gold wires with diameters from 0.0007 inches to 0.004 inches diameter.

Three bond methods are available in the software. A vertical-feed with the step-back stage and motorized Z give perfect looping every time. Ball bond connections can be similarly shaped, even by complex motions for perfect and consistent looping. This machine is also uniquely capable of making a succession of spaced single-ball bonds. Further, the Model 260 can be set up to function without feed mechanism and used as a Tab Bonder for bonding a pattern of connections, such as the flex circuits of computer disk read-heads.

MECHANICAL

The bonding mechanism is constructed of four axes, straight-line and orthogonal, stacked in an array. Two axes, X and Y, are driven by micromanipulator for positioning. Two axes, W (in Y direction) and Z, are driven by programmed motors to create and arch the connection. The view through the microscope at the target is judged by an angled view of the tool at a search elevation just above the bond pad. The movement, from the search down to contact, is controlled by a digital encoder that generates pulses to drive the Z Motor.

The pivot tool assemblies of this series are built around the Anza 62PT Transducer. The 62PT operates at 62 KHz. It is driven by an Anza digitally controlled Ultrasonic Power Supply, 5 watts, dual channel, with Power and Time set as program values. The variables of Power and Time can be programmed for each and every bond. This transducer uses a bond tool of 0.750" length dropped 0.65625" below center. Vertical clearance is a full 0.475" in all directions under the tool head. Wire Clamps are solenoid opened and spring closed, and have self-contained closure pivots. A separate pivot about the axis is located to generate the clamp motions along the lines of feed action. Alignment of clamps to the tool is facilitated by individual adjustments along three axes.

A high-resolution closed loop encoder is fitted to the Z-axis to provide real time position measurement for each bond elevation and then to initiate clamp re-closing to control wire loop arch consistency. This encoder enables a second function unique to Anza's 260 Series. Upon touchdown, contact is sensed by opening a firing switch that starts the initiation of ultrasonic energy and force. The force is then applied over a programmable time variable for a SOFT CONTACT with the pad.

Control of machine logic, motor motions, and ultrasonic energy is programmed to and executed through the Anza Digital board with 256 KB of nonvolatile RAM. All machine motions and functions and bond settings are programmable at the machine panel, prompted by a series of "screens" displayed on an LCD. The bond settings for a wire type can be entered and selected. Each wire type can have approximately 21 stitch bonds, each with its own settings of ultrasonic power and time and force. All programmed values are displayed during bonding.

An adjustable height platform is available as an option for 260 machines. These platforms can be either manual or automatic. Standard bonding method of Model 260 is a 90° wire feed, with the clamps above the tool, for a deep access.

OPERATING CONTROLS

- Twelve-key pad for entry of program data, setting of Modes, and direct control of machine actions.
- A Z encoder generates Z-Axis motor step clocks: X-Y manipulator moves the work holder, and motorized slides which sit atop the X-Y-Axes with 8/1 mechanical advantage.
- A rotary work table rotates about the center of tool motion range to pre-set the alignment of bonds front-to-back.

ESD PROTECTION

Protection against Electrostatic Discharge is implemented by finishing exposed tool assemblies and other moving parts with electroless nickel plating, which is conductive. All exposed painted parts are painted with a powder-coat paint that is dissipative.

WORK HOLDERS

All work holders are priced separately, and should be ordered separately. A universal unheated work holder is capable of holding most common substrate devices between a pivoted clamp lever and adjustable backstops, is maintained in stock and is available for delivery with the machine. This work station modified for screw-adjustable height is also available from stock. There are a large number of previously designed special work holders, both heated and unheated are available for purchase, but not immediately available in stock and therefore cannot be promised in delivery with machine. These should be noted under separate order, or the original order must allow for partial deliveries. Work holders for new work pieces requiring

custom design and fabrication will be quoted upon receipt of drawings and samples. These must also be noted on separate purchase orders.

SERVICES

Electrical service required is 50-60 Hz, single phase, either 115 VAC or 230 VAC; Fuse and three-prong power cord connectors are provided for 115 VAC: For 230 VAC, these must be changed to conform to local requirements.