290 Automated Wire Bonder Overview

The Anza Model 290 is our Four-in-One most sophisticated ultrasonic wire bonder machine that bonds insulated or bare wire, ribbon wire or flex circuit traces with microprocessor control and easy operation. In manual mode, it can be used as a small quantity lab or process development machine, offering price manual control of the Z axis bonding head and microprocessor control of the bonding time and power. In semi-automatic or automatic modes, it operates as a high volume production bonding unit ready for the process line, interfacing with fixtures and material handling systems. With it's superior quality and sophisticated capabilities, it's ready to automate your requirements of wire interconnections.

Model 290 is an ultrasonic wire bonder designed to interconnect wire leads to semi-conductor, hybrid, or microwave devices. The machine can be configured to be a ball, wedge, ball placement or TAB bonder by choosing in the software which method to use. The machine bonds aluminum or gold wires ranging from .0007 inches to 0.007 inches. Bonds are by the wedge-wedge or ball-wedge technique using ultrasonic energy to attach aluminum and gold wire at room temperature or by adding work piece heat. The machine will accept complex programs of device coordinates and bond data and an array of connections automatically without operator intervention.

MECHANICAL

The bonding tool is driven along vertical ways by stepper motors through a belt-driven cam mechanism that prevents damage from motor over-travel for any reason. The work station moves along horizontal ways driven by stepper motors through lead screws. Additional motors and actuators couple thru-bearings on the bond head to drive the wire clamp position and the force spring. All motors are driven in micro-step mode, but with sufficient resolution to stop on half-step boundaries. A rotary workstation is mounted on and moves with the X-Y table. The work piece on this station can be clamped mechanically or held by vacuum, and can be heated up to 300° C as controlled by Anza Tech's temperature controller. Adapters for different work pieces can be exchanged readily.

The ultrasonic transducer is Anza Model 62PT, full wave in length, operating at a nominal frequency of 62 KHZ. The built in ultrasonic power supply is 5 Watts. Settings of power, time and force values are executed via a key pad interface. Included is radiant tool heat with a panel mounted, constant current control.

RANGE, RATIO AND RESOLUTION

Bond Y	Range	4.00 inches
Bond X	Range	4.00 inches
Bond Z	Range	0.500 inch
Rotation	Range	Unlimited
Force	Range	5 to 275 Grams—programmable each bond

ESD PROTECTION

Protection against Electrostatic Discharge is implemented by finishing exposed tool assemblies and other moving parts with electro-less nickel plating, which is conductive. All exposed parts are coated 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, capable of holding most common substrate devices between a pivoted clamp lever and adjustable backstops, is maintained in stock and is available for delivery in the same time span as the machine. Quite a large number of previously designed special work holders, both heated and unheated, are available but are not stocked, and cannot be promised for delivery with the machine

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.

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