

Model 7300C Series: Single Head Die Bonders, Manual X-Y-Z

Last revised: 09/19/18 - microscope

Series Overview

Application and Function:

Machines of this series enable die attach by the eutectic with mechanical scrub method. Each of the three primary functions of picking, placing and scrubbing, of both the pre-form and die, are performed with a single tool head. Precise tool motions in all three axes are operator driven by a single lever micro-manipulator, which also triggers switching between vacuum pick-up and scrub sequences. Work piece pick-up and place areas are moved into position alternately by sliding the workholder on the work platform. A delay before scrub can be programmed as needed.

Programming and Interface:

All machine configuration constants are programmable at the machine panel, prompted by a series of "screens" displayed on an LCD. Input is via a combination of selector switch and tool vertical position, measured by encoder. These values together with sequence status are displayed during bonding.

Definitions of Models of this Series

- 7300C Ultrasonic Scrub, Single Collet Eutectic Die Bond Machine**
Values are programmed for scrub time and ultrasonic power.
- 7312C Motorized Scrub, Single Collet, Hot Gas, Eutectic Die Bond Machine**
Work is heated locally with a stream of forming gas prior to scrub. Values are programmed for scrub velocity, distance, direction and number of cycles. Alternately, manual scrub mode can be chosen.
- 7316C Motorized Scrub, Single Collet Eutectic Die Bond Machine**
Values are programmed for scrub velocity, distance, direction and number of cycles.
- 7327C Motorized Scrub, Hexa-Collet Eutectic Die Bond Machine**
Six different die collets are held on the tool head simultaneously. Advance to successive die collets is by pushbutton switch on the manipulator control. Values are programmed for scrub velocity, distance, direction and number of cycles.

Features Available for this Series

- 43B: Superimposed Microscope Attached Reference Target**
A visual reference is added to the microscope view to aid the precision placement of die. Custom reference targets are available on request through

separate order.

- 72E: External View TV Camera**
Color external view TV camera with magnification adjustment within a range of 30X to 55X. Flat screen monitor & power supply included.
- 79: Adjustable Height Work Platform**
Work platform with adjustable height for variable package thickness.
- 81: Adjustable Height Work Platform with Planarity Control**
Work platform with adjustable height for variable package thickness and three point adjustment control of work surface planarity. (recommended)

Mechanical

Scrub Action:	Y axis; programmable
7300C	ultrasonic; 63 kHz nominal; up to 5 Watts; scrub time up to 999 ms.
All others	motor driven; cycles up to 50; velocity settings from 1 to 20; stroke from +/- .001" to +/- .020"; settable for forward scrub, rearward scrub or both
Bond Force:	manually adjustable
7300C	10 – 130 grams
7312C	5 – 100 grams
7316C, 7327C	10 – 75 grams
Bond Tool:	fitted die collet
Diameter	1/16" (7300C, 7316C & 7327C) 1/8" (7312C and available on special order; 7316C & 7327C)
Length	0.625" (7300C & 7316C) 0.750" (7312C) 0.4375" (7327C)
Tool Heat:	adjustable radiant heater w/ steady state control (not available on 7327C)
Forming Gas:	
Flow gauge	0 – 10 Standard Cubic Feet per Hour 1/8" FNPT fittings
Tool Gas:	(7312C only)
Flow gauge	0 – 10 Standard Cubic Feet per Hour 1/8" FNPT fittings
Delivery	switched by software; regulating valve provided
Heat	adjustable on Low setting; High setting fixed at maximum
X/Y/Z Manipulator:	
X axis	pivoted motion; 8 : 1 reduction (7:1; 7312C); 0.625" travel (0.704"; 7312C)
Y axis	linear motion; 8 : 1 reduction; 0.625" travel
Z axis	pivoted motion; 3 : 1 reduction (2.6:1; 7312C); 0.688" travel (0.804"; 7312C)
Z encoder	0.001" resolution
Brakes	Y & Z axes; during scrub sequence
Balance	counterweighted & sprung; biased away from work
Work Elevation:	5.000" nominal above tabletop

Work Platform:
Height (standard) fixed @ 2.688" below nominal work elevation
(available) adjustable @ 0.094" above to 0.531" below fixed height
Attachment bolt on

Electrical Software and Hardware

Process Control: West-Bond Part No. 8100 CPU w/ Motorola 68000 microprocessor, 256 KB of nonvolatile RAM

Program Buffers: 6 total for each of the scrub parameters (10 total; 7300C & 7312C)

Display: 4-line, 40-character LCD

Z encoder: measured down from home position

ESD Protection

Protection against Electrostatic Discharge is implemented by finishing exposed tool assemblies and other moving parts by Electroless Nickel plating, which is conductive; and all exposed painted parts with a powder-coated paint that is dissipative (1 - 10 MΩ).

Machine Configuration

Microscope: Olympus SZ51-60E (recommended; not included)

Illumination: "Luxuray" #10265 (recommended; not included)

Die Collet: should be ordered directly from tool manufacturers (not included)

Work Holder: workholders are not included, and are priced separately. Quite a large number of previously designed special work holders, both heated and unheated, are available for selection from the Work holders Product List on our Website: Those with Status of *Current* can be selected for delivery in the same time span as the machine, while those of Status *Available Not Stocked* must be ordered separately. Workholders 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.

Temperature Controller: West-Bond K~1200D (recommended; not included)

Services Required

Compressed Air: 50 psi, dry
regulating valve & pressure gauge provided

Forming Gas: 30 psi, dry; for Tool Hot Gas and Air Puff (7312C only)

Vacuum: shop vacuum (3 – 25 in/Hg)

Electrical: 50-60 Hz, single-phase, either 115 VAC or 230 VAC; selected automatically. A fuse and three-prong power cord connector is provided for 115 VAC: For 230 VAC, these must be changed to conform to local requirements.

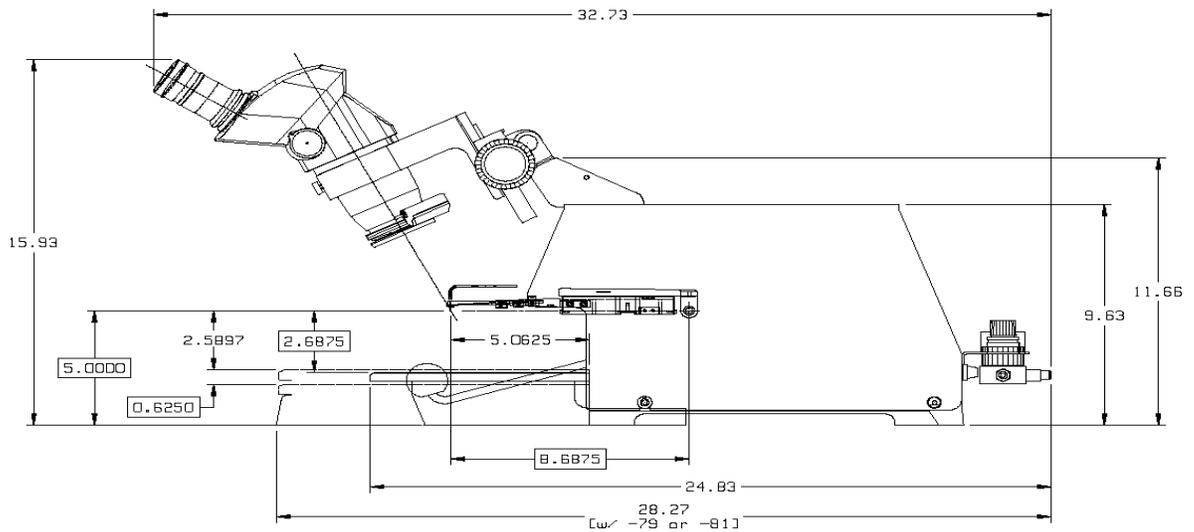
Weights & Dimensions

Uncrated: 51 lbs; w/o platform
 57 lbs; w/ standard platform
 67 lbs; w/ adjustable platform

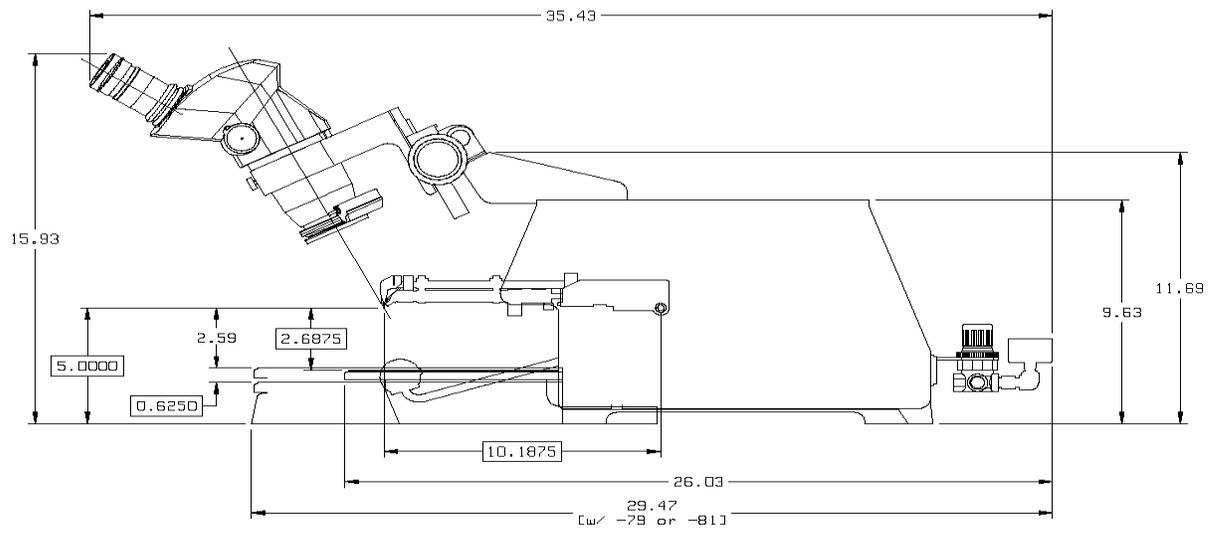
Crated: 120 lbs; w/ accessories

Overall Dimensions:
 Width 20.12" (21.37"; 7312C)
 Depth 29.05" (29.92" ; 7312C)
 Height 11.66" w/o microscope (11.69" ; 7312C)

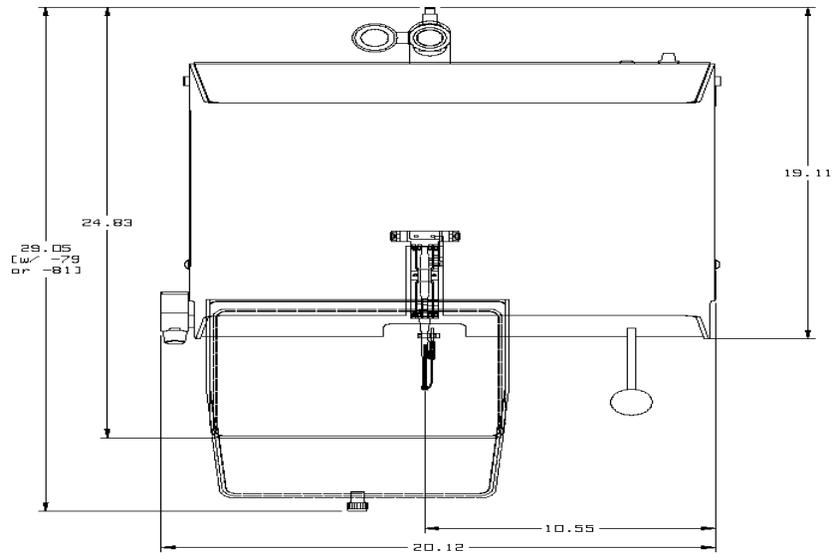
Dimensional Drawings



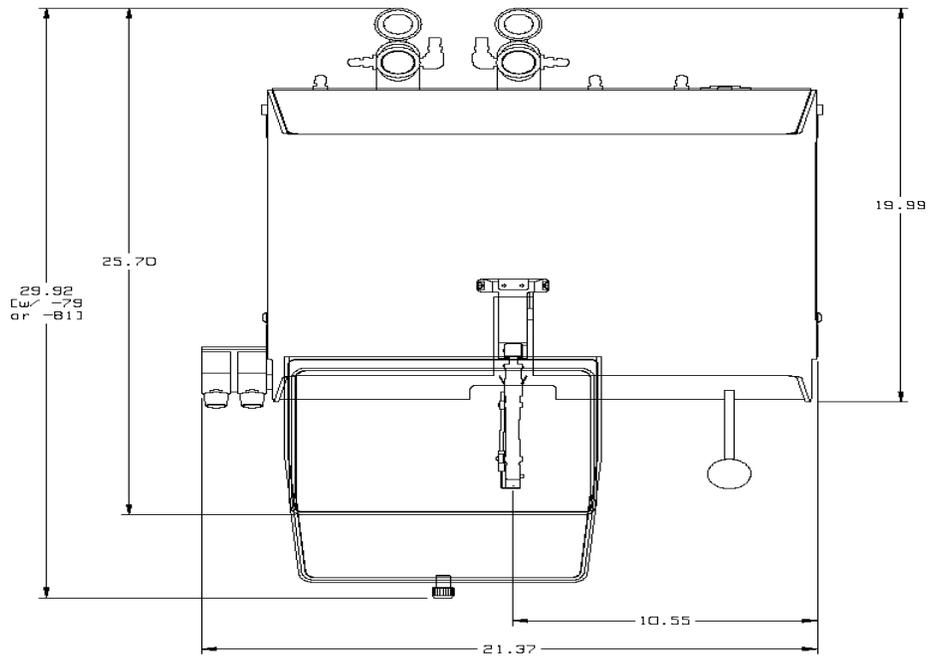
Side View
 Model 7300C, 7316C & 7327C



Side View
Model 7312C



Top View
Model 7300C, 7316C & 7327C



Top View
Model 7312C