Orthodyne 3700Plus Small Wire Bonder

Capability Plus

The 3700Plus is a high-accuracy, high-speed, small-wire bonder designed for COB, Hybrid and MCM type applications.

With a unique combination of Orthodyne's latest digital U/S generator, high-frequency transducer technology, and the optional Bond Process Monitoring System (BPM), the 3700Plus provides the most complete package to achieve consistent bond quality.

With its open design and large work area, the 3700Plus offers the most versatile and flexible equipment solution. Following this design principle, the 3700Plus easily adapts from manual operation to fully automatic line integration.

The 3700Plus represents a new wire bonder platform that meets today's advanced packaging challenges. Its technology delivers the highest productivity, process stability, lowest cost of ownership (COO) and the flexibility to grow with market demands.



Specifications

General

Bond Area	150 mm (Y) x 250 mm (X) 300 x 300 mm worktable optional
Z - Axis	50 mm Z-Stroke, 0.5 µm resolution, 0.1 µm overtravel resolution
θ - Axis	± 220°, 0.0035° resolution
Table Resolution	0.1 µm
Power Requirements	180 - 240 VAC, single phase 50/60 Hz, Line conditioner included
Power Consumption	5A at 230V
Microscope	Stereo zoom with adjustable work distance
Monitor	17-inch color flat panel
Work Height	1000 mm from floor (nominal), adjustable (934 - 1050 mm), meets SMEMA requirement (940 - 965 mm)
Foot Print	680 mm wide x 1308 mm deep
Safety Standards	CE certification through TUV

Small Wire Bondhead

Type	Orthodyne rotary, low mass, deep access, optional 45° or 60° wire feed angle head available
Tear & Feed	Clamp tear, programmable, 10 µm resolution, programmable pinch force
Bond Force	10 - 200 g, 1 g resolution
Transducer.	Orthodyne miniature, 120 kHz

Wire Handling Small Wire

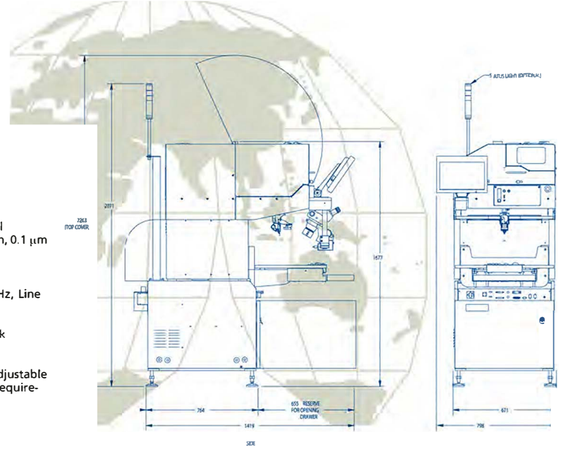
Wire Range	25 µm to 75 µm diameter
Wire Feed	Motorized wire dereeler with optical encoder
Missing Wire Detection	Wire deformation monitoring, wire feed check
Wire Spool Size	50 mm OD 26 - 55 mm width 49 mm ID

Pattern Recognition/Optics

Vision System	Enhanced Orthodyne GSIII Pattern Recognition System.
Digital Zoom Available.	Yes
Die Rotation	± 7 degrees from nominal for point and dual point mode, ± 20 degrees from nominal for edge mode.

System Configuration

CPU	VME PowerPC, for RTS (Real Time Server) CPCI Pentium, for DM (Data Manager)
File Storage	Hard Disk, CDRW
Comm. Ports	Serial port, Ethernet, USB, SECS/GEM Interface (optional)
Discrete I/O Lines	Standard: 32 lines. Expanded I/O (up to 64 lines) optional. Two 32-line ports available on front panel
Operating System	VxWorks for Real Time Function Windows XP for Graphical User Interface
Number of Bonds/Program	5000 bonds



Made the Orthodyne Way

The new 3700Plus represents a new wire bonder platform that meets today's advanced packaging challenges. Its technology delivers high productivity, process stability, low cost of ownership (COO) and the flexibility to grow with market demands.

The design of this new product family is based on decades of experience. Since 1962 Orthodyne has developed and perfected its core competencies in Motion Technology, Pattern Recognition and Ultrasonics.

Offering complete solutions with award-winning support, investing long-term to excel in an ever-changing industry and pairing leading-edge technology with a dedication to customer service is the Orthodyne way.

3700Plus SMALL WIRE WEDGE BONDER



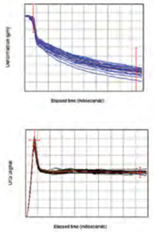


ORTHODYNE ® ELECTRONICS
A Division of VC

Unprecedented Productivity

uncompromised quality

Bond Process Monitoring
Optional system monitors bond deformation and ultrasonic signal in real-time. Suspect bonds are flagged and vital process information can be stored for evaluation.



High-Frequency Low-Mass Transducer
New Orthodyne 120kHz U/S system drives the Orthodyne miniature low mass transducer. The resulting low-impact force ensures high-quality interconnects.

Repeatable Tail Length
Modular tear and feed flat coil mechanism allows the user to program wire feed as well as clamp force, resulting in consistent tail length and tail control.

expandable cutting edge capabilities

Networking
Simple Networking via Ethernet. SECS/GEM is available as an option.

Large Work Area
250 mm (X) x 150 mm (Y) x 50 mm (Z) provides access for large and deep packages and space for convenient manual or automatic loading of parts. A 300 mm (X) x 300 mm (Y) large table option is available.



File Handling
CDRW, hard drive, USB and networking provide easy-to-use tools for data transfer, data storage and program back-up.

Manual To Automatic
3700Plus can be loaded manually for prototyping or low volume production. Additionally, automation and integration of the system is simple and inexpensive.

cost of ownership

Speed
Low-mass bondhead and unique XY table design, combined with high performance linear motors and advanced motion control technology, result in one of the most productive small wire wedge bonders on the market.

New Low-Maintenance Bondhead
Modular design is easy to set-up and maintain for higher uptime.



Enhanced Calibration & Diagnostics
User-friendly calibration and diagnostics software simplifies troubleshooting and machine calibrations.

Software
New GUI-based software structure offers simplified and user-friendly machine operation and sophisticated troubleshooting tools for lower training cost and increased uptime.



3700Plus Small Wire Wedge Bonder

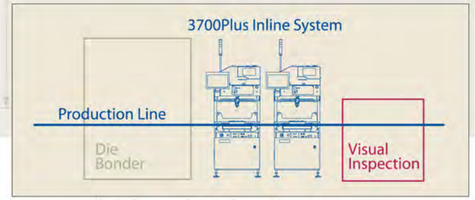
Ramp Bonding
3700Plus fully supports the Orthodyne ramp bonding technology used to provide a flexible process while improving yield for highly sensitive surfaces.

"Per Bond" Parameters
3700Plus Software makes virtually every bond parameter programmable on a "per bond" level. This customization assures maximum flexibility and bond quality for the most advanced packages.

Programmable Force Control
3700Plus bondhead features Orthodyne's third-generation programmable forcer. The improved accuracy and linearity throughout the bond force range ensures a consistent bond process.

Advanced Looping Algorithms
Constant loop length or height are just two of many looping features available.

Alternative Bondhead configurations
3700Plus is available with 45° and 60° wire feed bondheads



Enhanced PR
Enhanced third generation system (GSIII) offers accuracy and repeatability through a variety of powerful tools for virtually every device. Optional Cognex PR System including PatMax® available.

Open Machine Design & System Architecture
Completely open table design allows access from below the work area. Shuttle and clamping systems as well as line integration are simple and inexpensive.

The table can be removed or replaced to make room for any customized clamping scheme.

Available Options

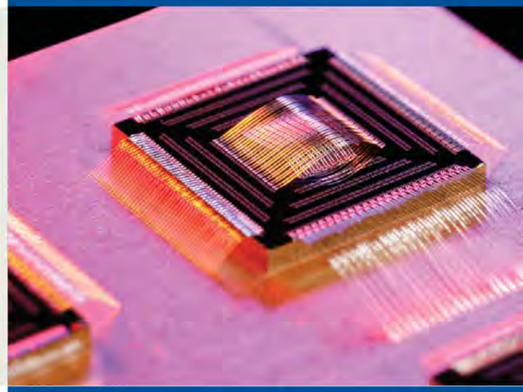
Bond Process Monitoring Option (BPM) detects process variations real-time. Process feedback can be stored locally or shared with a host system.

Programmable Status Light Tower features three programmable lights as well as an audio alarm feature.

Deep Access Bondheads 45° or 60° configurations offer exceptional clearance.

Large Moving Work Table expands the work area to 300 mm x 300 mm.

Offline Programming Tool (OPT) lets you convert existing CAD files into machine process programs, significantly increasing machine uptime.



Heated Workstage offers a large 4" x 4" Bond Area, Temperature range up to 250 degrees Celsius. Vacuum horizontal and vertical clamping options available.

Removable Casters are available to facilitate the relocation of the 3700Plus.

Bondhead Lighting Options offer solutions for every possible application.

SECS/GEM Options are supported for various factory automation systems.

Manual Workholders (heated or unheated) are available.

Cognex PR System including PatMax®