TURN-KEY SMT/THT SOLUTION

InterElectronic

INTRODUCTION

InterElectronic Hungary Ltd. offers equipments, machines and different materials (ESD) of different production technologies (SMT/THT/LED). Including high quality, special request fulfilling soldering machines, devices, tools, instruments and materials for the electronic industry and services.

SERVICES

Our each and every product has a warranty granted by the InterElectronic Hungary Ltd. For more complex appliances our company offers a well-needed training for set up and usage. We grant the repair of all of the products traded by our company during and after the warranty period. As well as we guarantee the continuous supply of accessories and instruments.

DEMONSTRATON

In case if any of our products aroused your interest the InterElectronic Hungary Ltd. would be glad to visit your company and hold a presentation of the product of your interest. As far as possible we serve you by bringing demo devices with us. In the most cases of our products we are proud possessors of references nation-wide. Major machines also could be observed at our partners' site.

PRICE LIST

Most of the prices of our products can be requested on our website and will be sent via email to you. In case of special and more complex machines the prices are given after consultation individually through a price offer. If you are interested in more information or user manuals of our products we recommend you to visit our website (www.interelectronic.com), which is updated continuously with professional information. We also recommend you to visit our office, where you can purchase any of the needed devices and spare parts of the product of your interest.

ORDER/SHIPPING

Our soon to be partners are welcomed to be helped via telephone, fax or e-mail. We use different ways of delivery, depending on the preference of our partner. We can deliver your purchased product by ourselves, by freight or courier service. The way of delivery might be negotiated previously. We offer you cash on delivery nation-wide!

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Advanced turnkey assembly solutions for low to medium volume PCB assembly DDM Novastar designs and manufactures cost-effective turnkey surface mount assembly and through hole assembly systems for low to medium volume PCB assemblers. A leading PCB equipment manufacturer for low/medium volume systems with over 24,000 systems sold.

Our innovative and reliable equipment includes stencil printers, pick and place machines, and reflow ovens for surface mount assembly; and wave or selective soldering systems for through hole soldering as well as lead forming machinery and component counters. DDM Novastar assists customers in every facet of their applications DDM Novastar offers practical 'hands-on' application assistance with every sale to help our customers choose the best equipment for their applications. In addition, customers can often use assistance in leasing, installation, training, service, and customization.

TURN KEY SMT/THT SOLUTION

AUTOMATED PICK & PLACE

LS40 AND LS60 PICK & PLACE MACHINE

Model
LS40

Board sizes to 13.5” x 22”
& 64 feeder positions

Model
LS60

Board sizes to 13.5” x 32”
& 96 feeder positions

Vision Centering

LS40V & LS60V vision assist pick & place systems use the full features of Cognex® vision centering. Bottom, top and on-the-fly places CSPs, micro BGAs and 15 mil pitch QFPs

System Features

- Placement rates up to 4800 cph
- Accommodates board widths up to 13.5”. Board lengths range from 12” to 32” depending on model. (See Specifications)
- Placement accuracy to 0.001”
- Vision system with fiducial correction, on-board dual function camera/computer color monitor
- Flexible feeder set-up allows easy interchange of electro-optical SmartCountTM tape, feeders
- On-the-fly component centering or optional touchless Cyberoptics® laser centering
- Resolution of 0.0000787” (2 microns) and accuracy to 0.001. Accurately places virtually all SMT components including discretes, SOICs, PLCCs, QFPs, and BGAs
- Capable of placing fine pitch components as low as 15 mil (0.381mm) and 0201s*
- Interchangeable tape, tube, bulk or tray feeders
- Fully self-contained all electric system. No shop air required
- Friendly, easy to use Windows® based software
- Automatic 4-position nozzle changer
- Fiducial correction
- Optional CAD transfer software.
- Software for panelized boards
- Accessible, unobstructed work plateau for operator
- Heavy, welded, steel frame construction
- Full interlock system for operator safety
- Optional convenient SuperStripTM feeders for short tape strips
- Optional fluid dispenser

LS Series System Configuration

The LS Series machines come in three basic sizes:

The LS40 has a maximum board size of 13.5” x 22” and a maximum capacity of 64 8 mm tape feeders.

The LS60 has a maximum boardmsize of 13.5” x 32” and ammaximum capacity of 96 8 mm tape feeders. Options are available for both models.

Operation

Once a specific PCB is programmed, the machine automatically picks up each component from its designated feeder or tray, centers the part via laser Cyberoptics® or centering fingers, moves to the placement location via closed loop servo system, and accurately places the part.

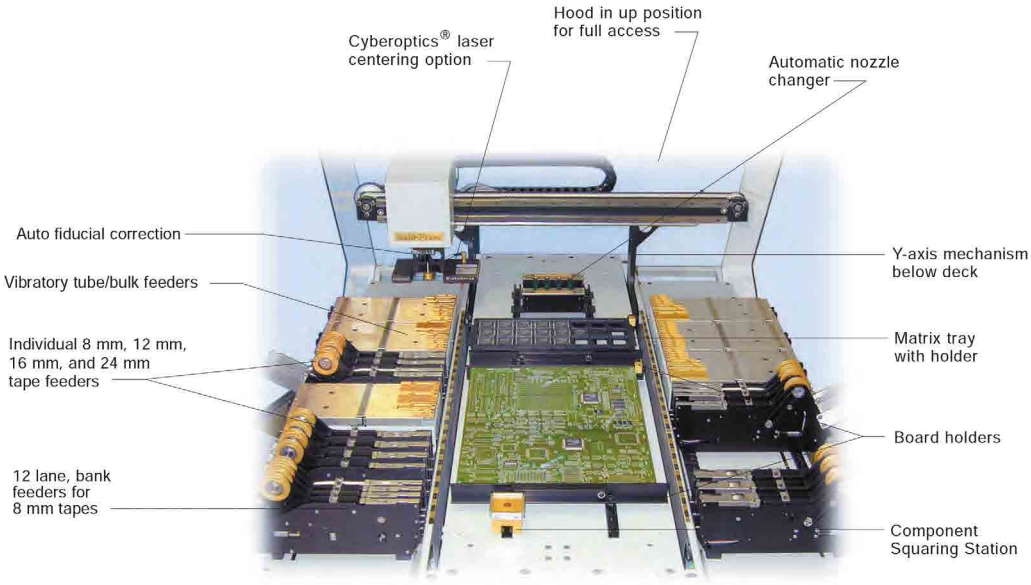
The feeders automatically position the next component for pick-up.

The automatic tool changer picks up the optimal nozzle for each particular component.

Feeders

Easy to change SmartCountTM electro-optical feeders available for tape, tube, bulk or matrix tray components. Standard tape feeder sizes include 8 mm, 12 mm, 16 mm, 24 mm. 32 mm and 44 mm. The L40 has a feeder capacity of 64, and the L60 has a feeder capacity of 96 positions. With the optional 12 position 8 mm bank feeders, capacity can increase by 50%, i.e. the model L60 would increase to a capacity of 144 8 mm tape feeders. The vibratory feeder can handle loose and tube components. Unique SuperStripTM feeders are a convenient way to use short tape strips. Feeder positions are pre-programmed for quick set-up.

Pick & Place Specifications



Model L60 showing easily accessible, unobstructed work deck

Laser Centering

The touchless Cyberoptics® centering option enables fast and accurate placement of the complete range of components.

Components

A wide range of components can be placed including 0201s, 0402s, 0603s, 0805s, 1206s, melfs, SO-28 to SO-8s, SOTs, SOICs, (fine pitch) QFPs, BGAs, large PLCCs, sockets and many others.

Vision System

The teach-in camera magnifies the positions onto a dual use color monitor. Its built-in vision software provides fiducial correction of misregistered boards.

Fluid Dispenser

Computer controlled in 10 millisecond increments with separate interval/raise-lower speed allows solder paste or adhesive glue to be applied accurately prior to component placement. This time/pressure fluid dipenper has dispense rates up to 10,000 dots per hour.

Software

The latest pentium PCs are included with these machines and the software is WindowsTM based to allow easy straightforward teach-in, requiring minimal operator training.

Multiple (panelized) boards can be programmed using the quick step-and-repeat feature. Using the dual function camera/ computer color monitor, standard PC keyboard and mouse, manual programming of a PCB is easy and intuitive.

Using CAD data from various layout systems will speed up the teach-in process for boards with many components.

Standard Features on all Models

- Automatic 4-position nozzle changer with 4 nozzles
- Friendly easy to use Windows® interface including software forpanelized boards, self diagnostics, error recognition, fault monitoring and more!
- On-the-fly component centering using centering fingers
- Fiducial correction
- The latest pentium PC with flat screen monitor
- Positional resolution of 0.0000787" (2 microns) with closed loop micro servo driven motion control and digital encoders
- The component squaring station enables accurate placement of fine pitch components while protecting fragile leads from damage due to excessive force

Accessories/Options

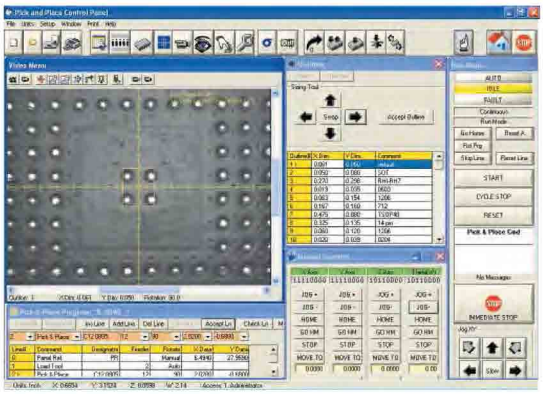
- Unicersal CAD transfer software
- Touchless Cyberoptics® laser centering system
- SuperStripTM feeders for pickup from short tape strips
- SmartCountTM electro-optical tape feeders
- Tube and bulk feeders
- Matrix tray holders
- Bank Feeders (12,8mm lanes) offer a lower per lane cost and higher 8mm feeder capacity
  Automatic fiducial correction
- Fully computerized fluid dispensing system
- Micro nozzles or Multi-Micro nozzles for small components
- Touch screen with enhanced operator interface
- Cognex® vision assist placement models: LS40V & LS60V

LS40V AND LS60V
PICK & PLACE MACHINE WITH VISION CENTERING

Model
LS60V

Vision System

The BGA being centered at the left appears on the software window shown at the right. The LV-series vision centering pick and place systems use the full features of Cognex® vision.



System Features

- Placement rates up to 4800 cph
- Placement accuracy to ±0.001”
- Capable of placing fine pitch components down to 15 mil
- Resolution of 2µm (0.0000787”) and accuracy to ±0.001”
- Cognex® vision system with fiducial correction, bad board mark and pattern recognition
- Optional fluid dispenser
- Friendly, easy to use Windows® based software
- Self-contained vacuum - no shop air needed
- Automatic 4-position nozzle changer
- Accessible, unobstructed work station for operator
- Feeder capability: 144 8mm tape lanes utilizing bank feeders
- On-the-fly component centering with top & bottom cameras

LS60V and LS40V Standard Features

- Automatic 4-position nozzle changer with 4 nozzles
- Friendly easy to use Windows® based software for panelized boards, self diagnostics, error recognition, fault monitoring and more!
- Automatic fiducial correction
- Positional resolution of 0.0000787” (2µm) with closed loop micro step driven motion control and digital encoders

Feeders

Standard tape feeder sizes include 8mm, 12mm, 16mm, 24 mm, 32mm and 44mm. The vibratory feeder with frequency and amplitude control can handle loose and tube components. Unique SuperStripTM feeders are a convenient way to use short tape strips. Feeder positions are pre-programmed for quick set-up. With the optional 12 position 8mm bank feeders, capacity can increase by 50%, i.e. the model LS60V would increase to a capacity of 144 8mm tape feeders.

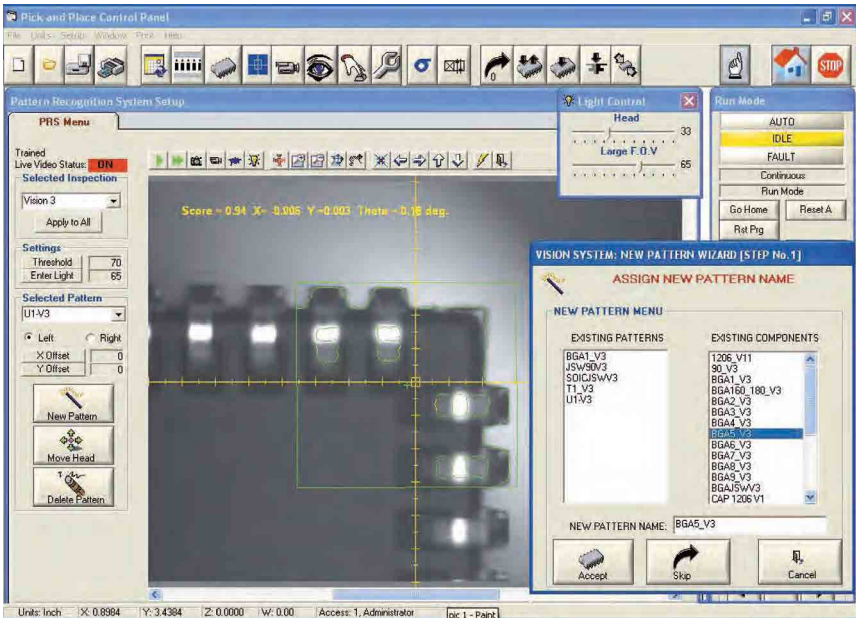
Fluid Dispenser

Computer controlled in 10 millisecond increments with separate interval/raise-lower speed allows solder paste or adhesive glue to be applied accurately prior to component placement. This time/ pressure fluid dispenser has dispense rates up to 10,000 dots per hour.

Components

The Cognex® vision assist allows accurate placement of 0201s, ultra micro BGAs, CSPs, QFPs and a wide range of virtually all SMT components.

Pick & Place Specifications



The vision software is Windows® based to allow easy straightforward teach-in, requiring minimal operator training.

LS40V & LS60V Specifications

Max placement rate	4800 cph	System dimensions LS40V	40” x 38” x 53”h (1016 x 1067 x 1346.2 mm)
Typical verifiable placement rate	2500-3600 cph	System dimensions LS60V	40” x 52” x 53”h (1016 x 1321 x 1346.2 mm)
Placement accuracy	±0.001”	Weight LS40V	370 lbs (168 kg)
Smallest component capability	0201s	Weight LS60V	430 lbs (195 kg)
Fine pitch capability	15 mil pitch (0.381mm)	Cognex® vision system	standard 2 camera (top and bottom)
Largest component size	2” (50mm) square body	Vision resolution	up to 10µm
Tape feeders	8, 12, 16, 24, 32, 44 mm (Electrical)	Digital light control	up to 4 illuminators
Bank feeders for taped compo-nents	12 8 mm lanes	Automatic 4 position nozzle changer	standard
Tube feeders (bulk also)	8, 10, 14, 18, 24, 32 mm (Manual freq. control)	Operating system	Microsoft WindowsTM
Matrix Tray Feeders	with Board/Matrix tray holders	Dispenser option	5, 10 & 30cc syringe holder type up to 10,000 dots/hr.
Component orientation Ø-axis motion	+ 360° in 0.18° step	Power	120 VAC, 50/60Hz, (220-240 VAC available)
Z axis max travel	1.5” (38 mm)	Compressed air	Shop air required for dispenser option only, 60 psi
Max travel area LS40V	22”(X axis) x 22”(Y axis) (560 x 560 mm)	Automatic fiducial & bad board mark recognition	standard
Max travel area LS60V	22”(X axis) x 32”(Y axis) (560 x 813 mm)	Data entry	Coordinate entry, “teach” mode, CAD download

LE40 PICK & PLACE MACHINE

Model
LE 40 Benchtop

Features

- Capable of placing a wide range of components from 0201discretes and SOICs to PLCCs and 15 mil pitch QFPs
- Placement rates up to 3000 cph
- Friendly, easy to use Windows® based software
- Standard self contained vacuum eliminates need for costly external air source
- Short tape strips can be set up easily using the unique SuperStripTM feeders
- 8, 12, 16, 24, 32 & 44 mm tape feeders available
- Vibratory feeders for stick/tube fed and loose components
- Provides economical automatic pick and place operation in a benchtop system

Specifications

Max board are LE40	13.5" x 22" (343 x 560 mm)	Component orientation Ø-axis motion	± 360° in 0.18° step
Max travel areaLE40	22"(X axis) x 22"(Y axis) (560 x 560 mm)	System dimensions LE40	40" x 42" x 25"h (1016 x 1067 x 635 mm)
Z axis max travel	1.5" (38 mm)	Laser centering option	touchless Cyberoptics® laser
Board thickness	0.020"- 0.156" (0.5mm - 4.0 mm)	Standard centering	Centering fingers - 1 set mounted on head
Typical verifiable placement rate	1800-2500 cph	Weight LE40	250 lbs (114 kg)
Max placement rate	3000 cph	Board holding	Edge clamp w/optional board support tooling
Placement accuracy	±0.006" standard, ±0.001" **	Data entry	Coordinate entry, "teach" mode, CAD download
Fine pitch capability	to 25 mil pitch (0.635mm), 15 mil pitch (0.381mm)**	Vision system	Color CCD card camera
Smallest component capability	0603 packages standard, 0201s**	Automatic Tool changer	4 position
Largest component size	1.378" (35mm) square body†	Operating system	Microsoft Windows
LE40 max no. of feeders (8mm tape)	64, (with Bank Feeders: 96)	Dispenser	Syringe holder type
Tape feeders	8, 12, 16, 24 mm (Electrical)	Power	120 VAC, 50/60Hz, 220-240 VAC available
Tube feeders (bulk also)	8, 10, 14, 18, 24, 32 mm (Manual freq. control)	Vacuum	on-board compressor standard
Matrix Tray Feeders	with Board/Matrix tray holders	Compressed air	Shop air required for dispenser option only, 60 psi
Low-force fine pitch squaring station	L-SQ		

Machine Options

L-CL	Cyberoptics® centering laser
L-LD	Liquid dispenser
L-GS	Linear encoders
L-UCT	CAD editor software option
L-AFC	Auto fiducial recognition
L-TS	Touch screen with enhanced operator interface

Feeder Options

L-VF	Vibratory tube/bulk feeder
L-T (tape feeders)	8, 12, 16, 24, 32, & 44 mm
L-BF-12 (bank feeder)	12 lane bank feeder for 8mm tapes
L-MBH	Matrix tray holder
L-SS-XX	Dual Lane SuperStripTM feeder for strips from 1" to 12" long
	XX indicates tape width: 8, 12, 16, 24, 32, 44, and 56 mm

*Custom options, nozzles and feeders available - contact factory.
**with L-GS option (Linear encoders)
†max size with Cyberoptics centering laser option: 30mm square (1.18" square)

CS40 BENCHTOP AUTOMATED PICK & PLACE MACHINE

Model
CS40 with bank and vibratory stick feeders

Features

- Provides affordable automatic pick and place operation in a benchtop system
- Individual 8, 12, 16, 24, 32 & 44 mm & 12 lane 8mm tape bank feeders available
- Inserts available for stick/tube/loose components in a vibratory feeder for SMT components including discretes, 0603s, SOICs, PLCCs, and 25 mil pitch QPPs
- Easy to set up, easy to program and easy to use with WindowsTM based software
- Optional convenient SuperStripTM feeders for short tape strips
- System includes 4 position nozzle changer for most SMT component sizes
- Placement rates up to 2100 cph
- Includes 15” flat screen monitor

Specifications

Max board are	13.5” x 22” (343 x 560 mm)	Component orientation Ø-axis motion	±360° in 0.90° step
Max travel area	22”(X axis) x 22”(Y axis) (560 x 560 mm)	CS40 System dimensions	40” x 42” x 25”h (1016 x 1067 x 635 mm)
Z axis max travel	1.5” (38 mm)	Centering	Centering fingers
Board thickness	0.020”- 0.156” (0.5mm - 4.0 mm)	Weight	200 lbs (114 kg)
Typical verifiable placement rate	1000-1800 cph	Board holding	Edge clamp w/optional board support tooling
Max placement rate	2100 cph	Data entry	coordinate entry, “teach” mode with color CCD camera, CAD download
Placement accuracy	±0.006” (0.15mm)	Vision system	Color CCD card camera
Fine pitch capability	to 25 mil pitch (0.635mm)	Automatic 4 position tool changer	additional changer optional
Smallest component capability	0603 packages	Operating system	Windows®
Largest component size	1.378” (35mm) square body	Dispenser option	Time & pressure, clean dry air @ 80 psi required
Max no. of feeders (8mm tape width)	64 (individual), 96 (bank)	Power	120 VAC, 50/60Hz, 220-240 VAC available
Individual tape feeders	8, 12, 16, 24, 32 & 44 mm (Electrical)	Compressed air	60 psi required for vacuum
Vibratory feeders	loose, tube, stick (Freq. & amplitude control)	Vacuum option	Self contained compressor, no air required
Matrix Tray Feeders	with Board/Matrix tray holders		

Machine Options

L-NC4	Extra 4 position nozzle changer - for 8 total positions
L-LD	Liquid dispenser
L-BHS	Board support
L-UCT	CAD editor software option
L-SCV	Vacuum - self contained

Feeder Options

L-VF	Vibratory tube/loose feeder - option
L-T (tape feeders)	8, 12, 16, 24, 32, & 44 mm - option
L-MBH	Matrix tray holders (set of 2) - option
L-SS-XX	Dual Lane SuperStripTM feeder for strips from 1” to 12”- option, XX indicates tape width: 8, 12, 16, 24, 32, 44, and 56 mm
L-BF-12	12 lane bank feeder for 8 mm tapes
L-BFRH-12	Reel holder for L-BF-12 bank feeder

*Custom options, nozzles and feeders available - contact factory.

LE40 V BENCHTOP AUTOMATED PICK & PLACE EQUIPMENT WITH VISION CENTERING

Your Economic Solution for:

Prototyping

Product Development

Short Run, High-Mix

Manufacturing Applications

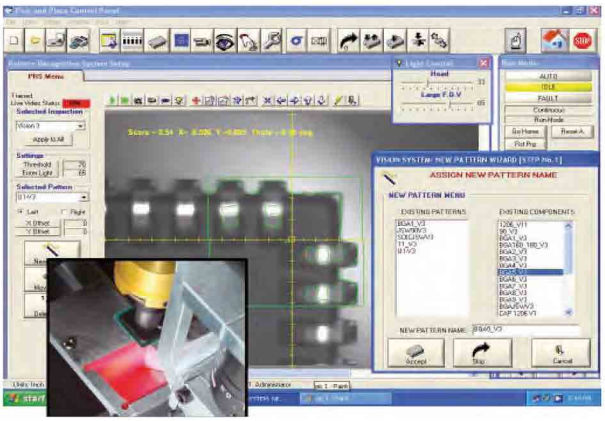
- **Technologically Advanced Features in a small, Space Saving Footprint**
- **Place virtually all SMT components with a benchtop unit.**
- **Increased Placement Accuracy with Cognex® Vision System and on-the-fl y component centering**
- **User Friendly Programming and Operation**

System Features

- Placement rates up to 3000 cph with accuracy ±0.001”
- Place virtually all SMT components from 0201 discreets, ultra micro BGAs, CSPs, and 15 mil pitch QFPs
- Friendly, easy to use Windows ® based software for pan-elized boards, self-diagnostics, error recognition, fault monitoring and more
- Standard self-contained vacuum eliminates need for costly external air source
- Cognex ® Vision System with fi ducial correction, bad board mark, and pattern recognition
- Handle loose and tube components with the optional vibratory feeder with frequency and amplitude control
- Conveniently use short tape strips with our Unique SuperStrip™ feeders in 8, 12, 16, 24, 32, 44, and 56mm

Vision System

The BGA being centered appears on the software window.The LE40V vision centering pick & place system uses the full features of Cognex® Vision.



L-SF40 BENCHTOP
AUTOMATED PICK & PLACE

Your Economic Solution for:

Prototyping

Product Development

Pilot Manufacturing

Low Volume Production

Features

- Provides the most economical solution in a fully automated pick and place bench- top system
- Capable of placing a wide range of components from 0201 discretes and SOICs to PLCCs and 20 mil pitch QFPs
- Placement rates up to 1800 cph
- Friendly, easy to use Windows® based software
- Tape reels & strips can be set up easily using the unique PIK-StripTM feeders
- 8, 12, 16, 24, 32 & 44 mm PIK-StripTM feeders available
- Capable of handling reels, cut tape, stick/tube and loose components

Specifications

Max board are L-SF40	13.5” x 22” (343 x 560 mm)	System dimensions L-SF-40	36” x 38” x 25”h (914 x 965 x 635 mm)
Max travel area L-SF40	22”(X axis) x 22”(Y axis) (560 x 560 mm)	On-the-fly component centering	Centering fingers
Z axis max travel	1.5” (38 mm)	Weight L-SF40	200 lbs (91 kg)
Board thickness	0.020”- 0.156” (0.5mm - 4.0 mm)	Board holding	Edge clamp w/optional board support tooling
Typical verifiable placement rate	1200-1800 cph	Data entry	Coordinate entry, “teach” mode, CAD down-load
Placement accuracy	±0.004”	Vision system	Color CCD card camera
Fine pitch capability	down to 20 mil pitch (0.508mm)	Automatic tool changer	4 position
Smallest component capability	0201 packages standard	Operating system	Microsoft Windows
Largest component size	1.378” (35mm) square body	Dispenser option	Time & pressure, clean dry air @ 80 psi required
L-SF40 max no. of lanes	72 - 8mm tapes	Power	120 VAC, 50/60Hz, 220-240 VAC available
PIK-StripTM available	8, 12, 16, 24 mm	Compressed air	60 psi required for vacuum
Tube feeders (bulk also)	8, 10, 14, 18, 24, 32 mm	Vacuum option	Self contained compressor, no air required
Matrix Tray Feeders	with Board/Matrix tray holders	Component orientation Ø-axis motion	± 360° in 0.18° step

Machine Options

L-SF-LD	Liquid dispenser
L-UCT	CAD editor software
L-SF-AFC	Auto fiducial recognition
L-TS	Touch screen with enhanced operator interface
L-SF-SCV	Vacuum - self contained
L-SF-SC	Lexan safety cover
L-NC4	Extra 4 position nozzle changer - for 8 total positions
L-BHS	Board support
L-SF-SQ	Low force fine pitch squaring station option

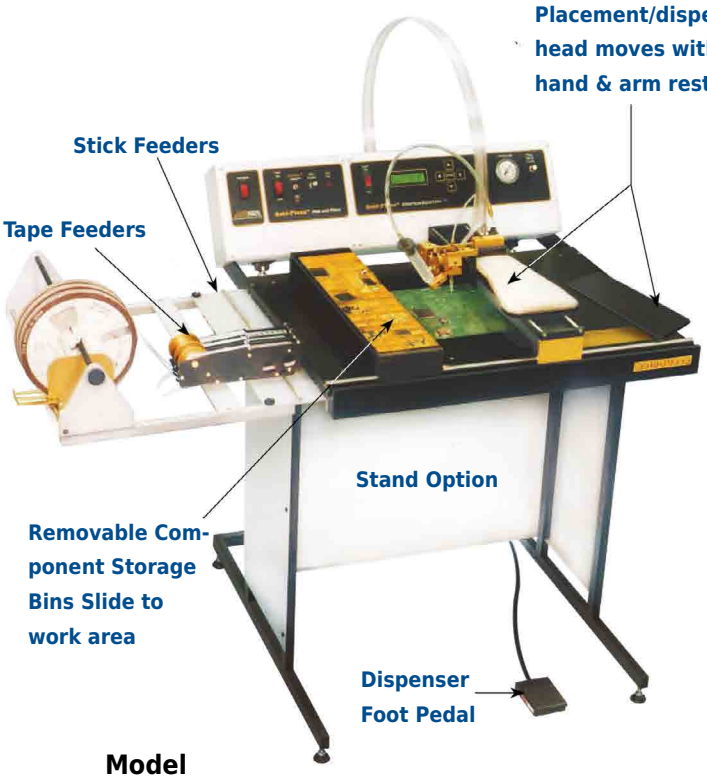
Feeder Options

L-PS8 PIK-StripTM	9x 8mm tape lanes
L-PS12/16 PIK-StripTM	4x 12mm & 2x16mm tape lanes
L-PS24 PIK-StripTM	4x 24mm tape lanes
L-MBH	Matrix tray holder
L-SS-XX	Dual lane SuperStripTM feeder for strips up to 13.5” long
	XX indicates tape width: 8, 12, 16, 24, 32, 44, and 56 mm

MANUAL PICK & PLACE

MPP-21 AND MPP-11 PICK UP AND PLACE SYSTEM

Model
MPP-11
Benchtop pick & place with dispenser



Model
MPP-21
Benchtop pick & place with dispenser, feeder rack, tape & stick feeders, and stand option

MPP-10 & 11

Work area handles board sizes up to 14” x 14”

Movable, ESD Safe Component Bins slide in close to placement area

Optional tape and stick feeders with feeder rack for more efficient component handling

SYSTEM DESCRIPTION

The MPP series allows an operator to accurately and efficiently place SMT components manually. Its patented hand rest and arm assembly alleviates operator fatigue by carrying the operator’s hand throughout the entire process. The vacuum tip automatically toggles on and off during component pick-up and placement. The digitally timed dispenser accurately deposits solder paste, adhesives and various potting compounds.

Models MPP-10 and MPP-20 include the complete pick & place function.

Models MPP-11 and MPP-21 include both the pick & place and the four mode programmable dispenser.

All MPP systems come equipped with 40 movable ESD safe component bins (32- 1” x 1” and 8-2” x 2”, reconfigurable) which slide in close to placement area, movable padded hand rest, AutoPick TM feature, a left/right handed pick & place head, and an option for tape and stick feeders which can be added at any time.

MPP-20 & 21

Large work area handles boards up to 16” x 24”

Innovative, movable padded hand and elbow rest design to alleviate operator fatigue and discomfort

Inline design with track hook-up provides progressive production (Push-Line) capabilities

Stand option available

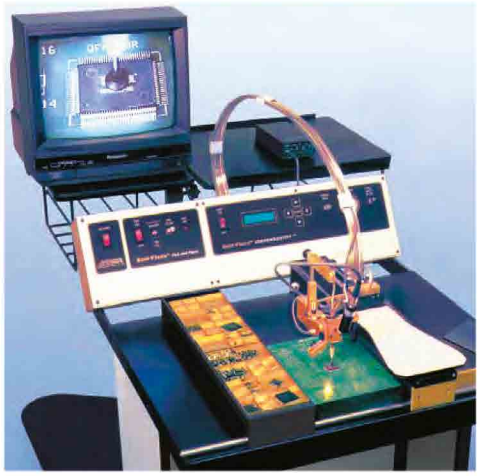
Model
MPP-22
Benchtop pick & place shown feeder rack, tape and stick feeders

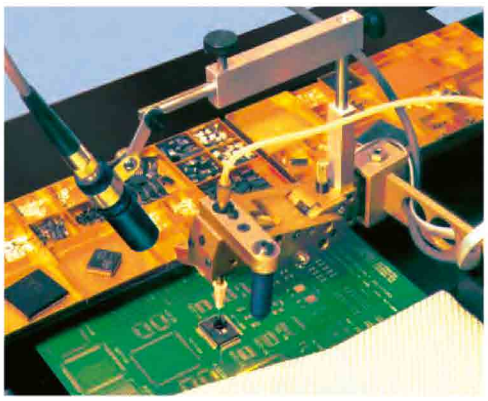
Pick & Place Specifications

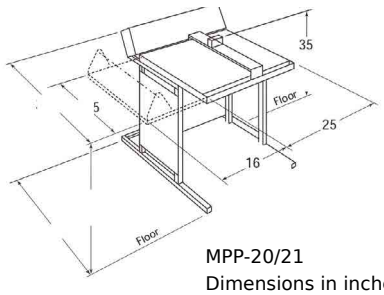
MPP-VC VIDEO DISPLAY SYSTEM

- Enhances overall component placement capabilities
- Simple to attach and set up; easy to operate
- Fully adjustable viewing angle facilitates accurate placement
- Complete system includes 13” color monitor, CCD “ lipstick” camera, video controller
- Compatible with all APS manual pick and place systems, models MPP-10, 11, 20 & 21
- Camera view remains focused on PCB during final placement operation

“The ergonomic solution to manual SMD pick & place”







MPP-20/21
Dimensions in inches

Model	MPP-20/21	MPP-10/11
Max PCB size	16” x 24” (406 x 610mm)	14” x 14” (356 x 356mm)
Overall dimensions	25” x 28.5” x 7” 635 x 724 x 178mm	27.5” x 30” x 9” 700 x 762 x 230mm
Height with stand	35” (889mm)	Benchtop only
Power	120/240 VAC, 50/60 Hz, 1 amp	120/240 VAC, 50/60 Hz, 1 amp
Shop air*	100 psi max.	100 psi max.
4 mode digital dis-penser	MPP-21, yes MPP-20, no dispenser	MPP-11, yes MPP-20, no dispenser
ESD safe conductive bins STD all models	1” x 1 ” bins: 64 max 2” x 2” bins: 16 max	1” x 1 ” bins: 64 max 2” x 2” bins: 16 max
Stand option	yes	no
Video Display System option MPP-VC	yes	yes
Slide-line connector kit option	yes 18.5” x 27.7”	no

*Self contained vacuum available upon request for pick & place

MPP-10	Manual Pick & Place System
MPP-11	Manual Pick & Place System with Dispenser
MPP-20	Manual Pick & Place System
MPP-21	Manual Pick & Place System with Dispenser
MPP-ST	Stand for MPP-20 and MPP-21
MPP-FR	Feeder Rack for Tape and Stick Feeder
MPP-VC	Video Display System
PTF-8	8mm Tape Feeder for MPP-Series
PTF-12	12mm Tape Feeder for MPP-Series
PTF-16	16mm Tape Feeder for MPP-Series
PTF-24	24mm Tape Feeder for MPP-Series
PST-8	8mm Stick Feeder for MPP-Series
PST-10	10mm Stick Feeder for MPP-Series
PST-14	14mm Stick Feeder for MPP-Series
MPP-BH	Extra board holder
MPP-TR	Storage tray (includes 4 2”x 2” & 16 1” x 1” Bins)
SLC-X	Slide-line connector kit for MPP-20 & 21

REFLOW OWENS
Low to Medium Volume

1800HT Conveyor Reflow Oven
2000HT Conveyor Reflow Oven

Model
1800-HT with 18” wide conveyor and 50” heated tunnel length, shown with edge conveyor and PC interface options

Model
2000-HT with 20” wide conveyor and 72” heated tunnel length shown with PC interface option

MODEL 1800 HT

- 4 vertical heating zones plu s cooling zone
- Low mass 18” wide stainless stee l conveyor
- Easy lift clamshell design with ga s strut assist
- Status light tower

Options

- Capable of High Temp to 400°C (752°F) for lead free solder
- Status light tower for Model GF-120-HT, (standard on 1800 and 2000)
- Edge rail conveyor (Models 1800 and 2000 only)
- Nitrogen inerting
- PC interface/windows ® software
- Enclosed stand (GF-120-HT only)
- Enhanced printing option
- PAK pro ling accessory kit
- Custom (curing, drying) applications

Upper heating Zone Showing:

heating elements (1)
upper forced turbine (2)
inert gas suffuser (3)
interior lighting (4)

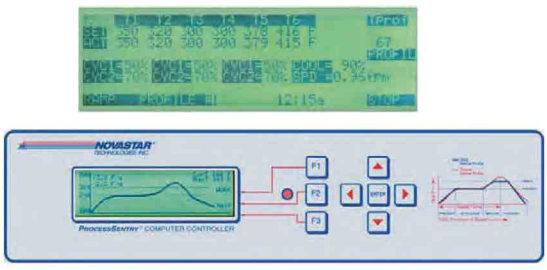
MODEL 2000 HT

- 6 vertical heating zones plus cooling zone
- Low mass 20” wide stainless stee l conveyor
- Easy lift clamshell design with ga s strut assist
- Status light tower

ProcessSentry TM COMPUTER CONTROL

The ProcessSentry TM microprocessor control is the brain of DDM Novastar ovens . All parameters are set and displayed in real time.

The ProcessSentry TM is sophisticated yet clear and straightforward. Programming is intuitive and operation is truly user-friendly. The system provides unrivaled accuracy and repeatability while assuring safety and reliability.

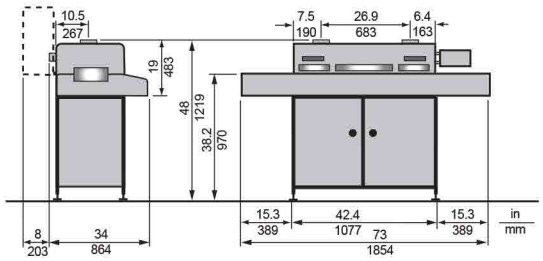


ProcessSentry TM display showing the real-time temperature pro le as PC board travels through the oven.

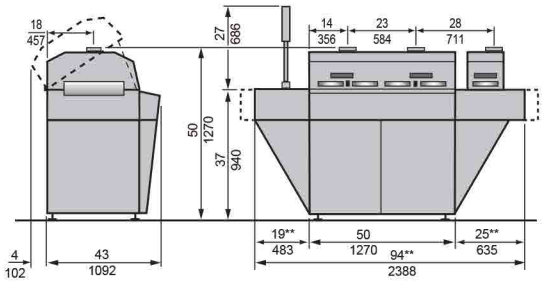
“With revolutionary Horizontal Convection”

Reflow Oven Specifications

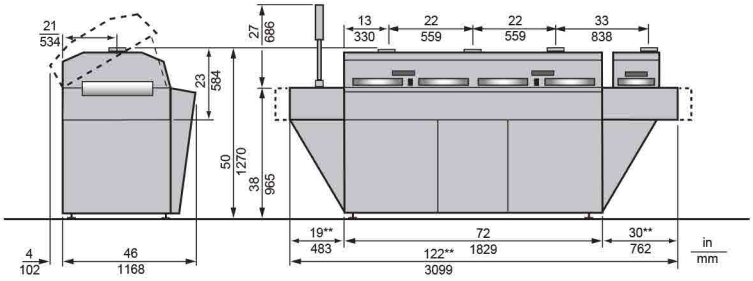
Models GF-120-HT



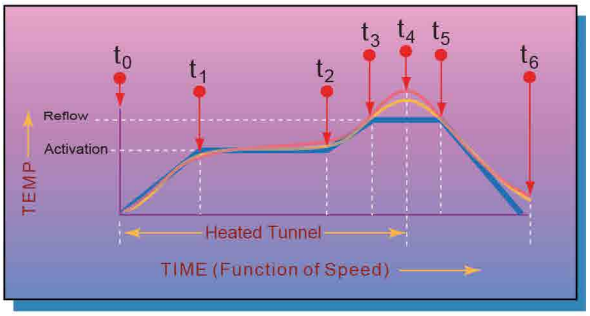
Models 1800-HT



Models 2000-HT



Machine Specifications	Models GF-120-HT	Models 1800-HT	Models 2000-HT
Emitter Technology	Horizontal ConvectionTM	Horizontal ConvectionTM	Horizontal ConvectionTM
Heat Tunnel Length	41” (1042mm)	50” (1270mm)	72” (1829mm)
Standard Heating Zones	3 Top, 3 Bottom	4 Top, 4 Bottom	6 Top, 6 Bottom
Cooling Fans	2	2	4
Electrical Power***	220 VAC, 50/60 Hz 1Ø, 50A	220 VAC, 50/60 Hz 3Ø, 70A	220 VAC, 50/60 Hz 3Ø, 100A
Peak Power	8.7 kW	23.2 kW	34.8 kW
Maximum Tempera-ture	HT: 400° C (752° F)	HT: 400° C (752° F)	HT: 400° C (752° F)
Maximum Board Width	12” (300mm)	18” (457mm)	20” (508mm)
Maximum Board Height†	1.375” (35mm)†	1.375” (35mm)†	1.375” (35mm)†
Height of Conveyor	37.5” + 1/2” (940mm)	37.5” + 1/2” (940mm)	37.5” + 1/2” (940mm)
Venting Require-ments	Two 4” (102mm) Dia. Flanges 200 CFM (340m3/h) each	Two 4” (102mm) Dia. Flanges 250 CFM (425m3/h) each	Three 4” (102mm) Dia. Flanges 200 CFM (340m3/h) each
Cooling Zone Venting	NA	4” Dia. Flange, 0-400 CFM (680m3/h)	4” Dia.Flange, 0-400 CFM (680m3/h)
Approx. Shipping Weight	600 lbs (272 kg)	1050 lbs (476 kg)	1650 lbs (748 kg)



Theoretical Reflow Profile

Typical Profile for Model 1200 (3 Vertical Heating Zones)

Typical Reflow Profile for Model 2000 (7 Vertical Heating Zones)

t_0-t_1	PREHEAT
t_1-t_2	ACTIVATION
t_2-t_3	RAMP
t_3-t_4	REFLOW
t_4-t_6	COOLING
t_3-t_5	LIQUIDOUS

*All DDM Novastar reflow ovens are covered under patent 6,936,793
**Add 4 inches to each end for edge conveyor
***Other electrical configurations available
†Up to 4” (102 mm) special application tunnel height

GF-125 HC/HT

Five (5) Zone Horizontal Convection™ Reflow Oven

Your Economic Solution for:

Prototyping

Product Development

Curing Applications

Short Run, High Mix

Manufacturing Applications

Forced Air Horizontal Convection Heating provides uniform temperature profiling across the entire PCB board.

Convection Reflow Oven Features

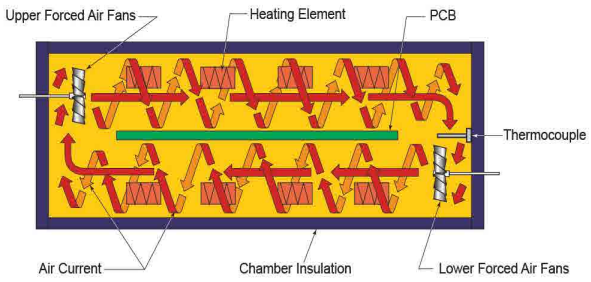
- Lead and Lead free Compatible
- 100% forced air Horizontal ConvectionTM oven
- 5 vertical heating zones plus cooling zone
- Integrated enclosed stand with 12” wide conveyor
- Stainless steel conveyor and chambers
- Easy lift clamshell design
- Viewing windows with lighted interior
- PC Interface/Windows® software option
- Status Light Tower Option
- Computer controller with:
  - 100 menu profile storage
  - 7 day programmable timer
  - Real time graphic temperature profiler
  - ISO 9000 SPC fault monitoring and reporting
  - Battery memory backup
  - English or metric units
  - Password protection
- Nitrogen gas inerting option

Reflow Oven Specifications

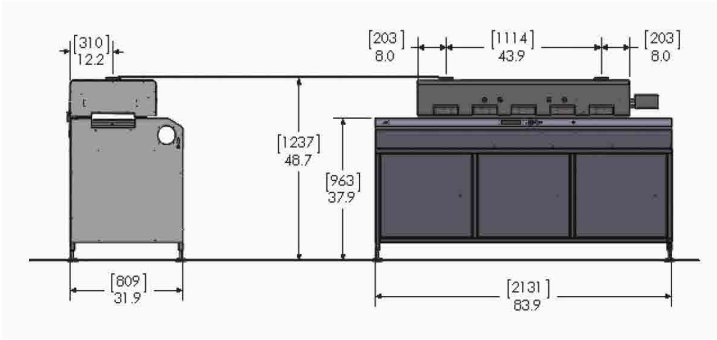
GF-125-HC/HT with Horizontal Convection™

With the patented** Horizontal ConvectionTM , air is circulated horizontally in one direction above the board, and in the opposite direction below the board. This circular air current, or “cyclone” around the board, produces extremely uniform temperature profiles across the board. The model GF-125HTs are high temperature ovens which are compatible with all lead and lead free soldering applications.

GF-125-HC/HT chambers cross section



The GF-12/120/125 series heating profiles are superior to other ovens in their class. Each of the vertical heating zones is programmable through the controller which stores up to 100 profiles. The oven includes a real-time temperature profile port. When a thermocouple is attached to the PC board, the actual board level temperature profile is displayed graphically as the board travels though the oven. The conveyor speed, heating elements, cyclonic generators and cooling fans are all programmable. The oven also features SPC fault monitoring & reporting, battery backup and a 7 day timer for automatic machine start-up.



PRODUCT SPECIFICATIONS

Specifications	GF-125 HC/HT
Max. PCB Width	304mm (12 inches)
Max. PCB Height	35mm (1.375 inches)
Heating Zones	5 top, 5 bottom
Max. Temperature	400°C (752°F)
Heated Tunnel Length	1423mm (56 inches)
Convection	Forced air horizontal convection
Conveyor	Mesh belt
Conveyor Extensions	Yes
Venting	Two (2) 102mm (4”) dia. Flanges, 200 CFM each
Cooling Station(s)	One (1)
Cooling Zone Fans	Two (2)
Cyclonic Generators	Ten (10)
Nitrogen Option	Option
PC Interface	Option
Heater (Peak) Power	14.5 kW
Power Requirements	220 VAC, 50/60 Hz, 3Ø , 70 Amp
Length	2133mm (84 inches)
Width	813mm (33 inches)
Height	1245mm (49 inches)

PAK-10 Profile Kit Option

The temperature profiling accessory kit includes all you need to profile PC boards, through your reflow oven. It is compatible with any oven or profiling system that uses standard K-type thermocouples.

Nitrogen Inerting Option

All GF ovens have a nitrogen gas inerting option. With the iso lated c hamber design (recirculation of atmosphere within reflow zone) low oxygen levels are maintained while conserving nitrogen consumption.

- Decreases wetting angle
- Increases flux efficiency
- Enhances fine pitch solder fillets
- Improves surface finish of solder joints

**Machines covered under Patent 6,936,793

Conveyor and Batch Reflow Ovens

Conveyor Reflow Oven Features

- Lead and Lead free Compatible
- 100% forced air Horizontal ConvectionTM oven**
- 3 vertical heating zones plus cooling zone
- 12” wide conveyor
- Stainless steel conveyor and chambers
- Easy lift clamshell design
- Viewing windows with lighted interior
- Computer controller with:
  - 100 menu profile storage
  - 7 day programmable timer
  - Real time graphic temperature profiler
  - ISO 9000 SPC fault monitoring and reporting
  - Battery memory backup
  - English or metric units
  - Password protection
- Nitrogen gas inerting option
- PC Interface/Windows® software option
- Enhanced printing option

Batch Oven Features

- Lead and Lead free Compatible
- 100% CyclonicTM forced air convection
- Unique shuttle system enables higher throughput than standard batch ovens
- Individual time and temperature microprocessor controls make profile set-up easy
- Large top window allows the operator to see the board through the entire process
- All stainless steel interior construction
- Dual cooling stations
- Nitrogen gas inerting option
- Up to 12” x 12” boards

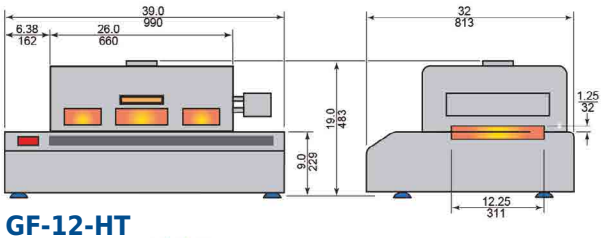
**Patent 6,936,793

“All ovens are available with lead free capablity and are made in the USA”

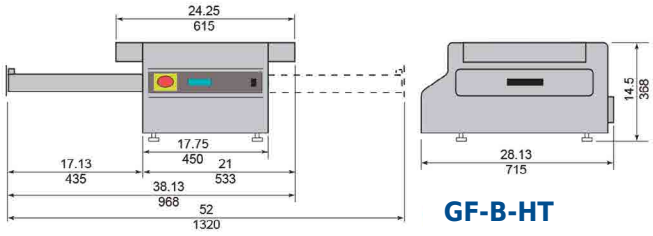
Reflow Oven Specifications




Model	GF-120-HT	GF-12-HT	GF-B-HT	GF-C2-HT
Heating zones	3 top, 3 bottom	3 top, 3 bottom	1	1
CyclonicsTM (forced air)	3	3	1	1
Conveyor extensions	NA	yes	Dual board shuttle	NA
Electrical power	220 VAC, 50/60 Hz 1Ø (3Ø option), 50A 8.7 Kw	220 VAC, 50/60 Hz 1Ø (3Ø option) 5.5 Kw	15A @220 VAC, 50/60 Hz 1Ø, 2.7 Kw	110 VAC, 50/60 Hz, 20A 220VAC, 50/60 Hz, 10A 1.8 Kw
Max board width	12” (305mm)	12” (305mm)	12” x 12” (305 x305mm)	12” x 12” (305 x 305mm)
Max board height	1.375” (35mm)	1.375” (35mm)	1.250” (32mm)	3” (76mm)
Cooling station(s)	1	1	2	NA
Max temperature	752°F (400°C)	662°F (350°C)	600°F (315°C)	600°F (315°C)
Venting	(2) 4” flanges 100 CFM ea. max.	(2) 4” flanges 100 CFM ea. max.	4” flange 100 CFM max.	NA
Heating technology	Forced air Horizontal ConvectionTM	Forced air Horizontal ConvectionTM	Forced air convection	Forced air convection
Heat tunnel length	41” (1042mm)	26” (660mm)	NA	NA
Nitrogen option	Yes	Yes	Yes	Yes
Stand option	Yes	Yes	Yes	No
PC interface option	Yes	Yes	No	No
Overall dimensions	73” x 34” x 19”H 1854 x 864 x 483 mm	39” x 32” x 19” H 990 x 813 x 483 mm	38.13” x 28.13” x 14.5” H 968 x 715 x 368 mm	29.12” x 16.5” x 12” H 740 x 420 x 305 mm
Approximate weight	600 lbs (272 kg)	220 lbs (98 kg)	102 lbs (46 kg)	56 lbs (25 kg)



GF-12-HT



GF-B-HT

“Conveyor and batch ovens for solder reflow, curing, drying and thermal cycling”

GF-120-HT Batch Oven
GF-12-HT Batch Oven

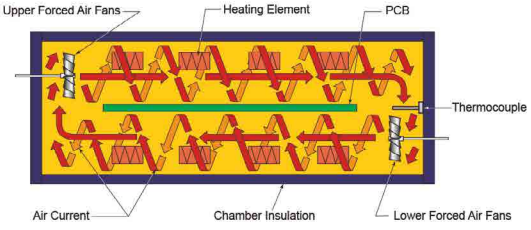
Model
GF-120-HT
with optional stand

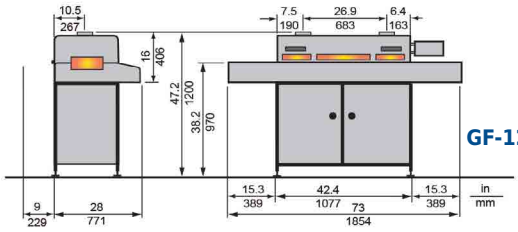
**

GF-120-HT
with Horizontal Convection™

With the patented** Horizontal ConvectionTM , air is circulated horizontally in one direction above the board, and in the opposite direction below the board. This circular air current, or “cyclone” around the board, produces extremely uniform temperature profiles across the board. The model GF-120HTs are high temperature ovens which are compatible with all lead and lead free soldering applications.

GF-120-HT chambers cross section



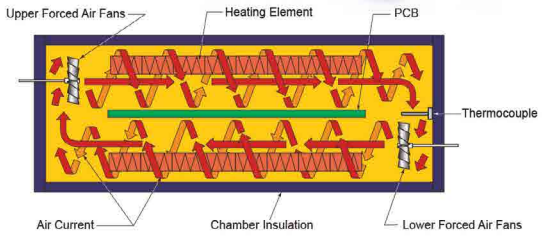


GF-120-HT

The GF-12/120 series heating profiles are superior to other ovens in their class. Each of the vertical heating zones is programmable through the controller which stores up to 100 profiles. The oven includes a realtime temperature profiler port. When a thermocouple is attached to the PC board, the actual board level temperature profile is displayed graphically as the board travels through the oven. The conveyor speed, heating elements, cyclonic generators and cooling fans are all programmable. The oven also features SPC fault monitoring & reporting, battery backup and a 7 day timer for automatic machine start-up.

Model
GF-12-HT

GF-12-HT



Our patented Horizontal ConvectionTM technology** circulates heated air in each chamber around the board front to back which increases the thermal efficiency and uniformity within each zone. This exposes the circuit board to a uniform temperature profile along the entire assembly. Cyclonic generator speed is independently set in each zone.

PAK-6 temperature profiling kit

GF-12-HT
with stand option

The temperature profiling accessory kit includes all the accessories you need to profile PC boards through your reflow oven. It is compatible with any ovens or profiling systems which use standard K-type thermocouples.

Nitrogen Inerting Option

All GF ovens have a nitrogen gas inerting option. With the isolated chamber design (recirculation of atmosphere within reflow zone) low oxygen levels are maintained while conserving nitrogen consumption.

- Decreases wetting angle
- Increases flux efficiency
- Enhances fine pitch solder fillets
- Improves surface finish of solder joints

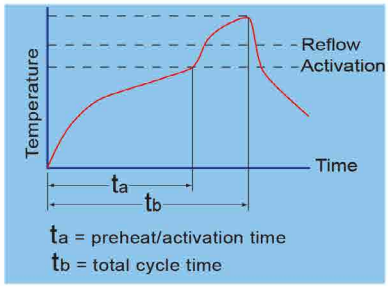
GF-B-HT Batch Oven
GF-C2-HT Batch Oven

Hight temp model
GF-B-HT*

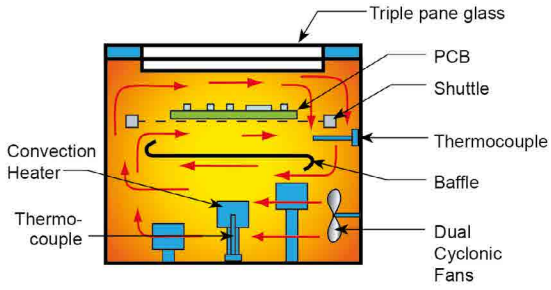
Model
GF-C²-HT
conduction/convection oven

GF-B-HT Batch Oven** Features

- High temperature GF-B-HT for lead and lead-free soldering
- Unique shuttle system enables higher throughput than standard batch ovens
- Large top window allows the operator to see the board through the entire process
- 100% CyclonicTM forced air convection
- Independent time and temperature microprocessor controls with membrane keypad make set-up easy
- 99 menu storage with password protection
- All stainless steel interior construction
- Dual cooling stations
- English or metric units
- Nitrogen gas inerting option



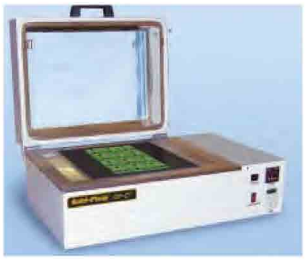
GF-B-HT Reflow Profile



GF-C²-HT Batch Oven** or Hot Plate

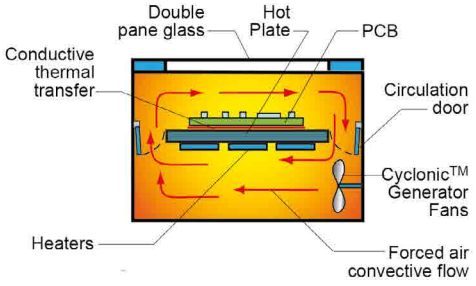
The GF-C2-HT oven is ideal for batch SMT reflow, curing and hot plate applications. With its heavy duty construction and stainless steel chamber, the oven is designed for many years of reliable service.

- Can be used as a batch oven or a hot plate.
- Large heating area of 12” x 12”.
- Combination forced air convection/conduction heating for consistent process control.
- Large viewing window allows the operator to see the entire product and process.
- 3/4” thick aluminum heat plate.
- Digital temperature controller precisely and automatically regulates temperatures.
- Programmable digital timer with alarm.
- Nitrogen gas inerting option.



Model
GF-C²-HT
for lead free soldering

Model
GF-C²-HT
with hood up
for hot plate use



GF-C²-HT Chamber

**Machines covered under Patent 6,936,793

AUTOMATED AND MANUAL STENCIL PRINTERS

Model
SPR-45 automatic stencil printer with stand option

Model
SPR-10 manual stencil printer

Model
SPR-45 semi automatic stencil printer

Options

The DDM Novastar Stencil Printers range from manual to semi-automatic to automatic.

DDM Novastar Stencil/Screen Printers are designed for low to medium volume assembly runs. Precise X,Y, Z, and theta axis controls allow for accurate, consistent deposition of solder paste or masking material for SMT. These durable, easy-to-use systems provide repeatable and reliable results. A unique “Foil-Frame” adapter kit is available for all models to mount frameless stencils (foils). This option greatly reduces stencil costs.

Features

- Rugged welded steel frame is precision engineered for fine-pitch electronics
- Fine X, Y, Z and Ø adjustments for exact stencil-to-board alignment
- Quick, easy stencil changeover for short setup times
- Squeegee holder accepts polyurethane or metal blades
- Clear Lexan® fixture provides quick and easy print alignment and set-ups
- Foil-frame option for mounting frameless stencils

Stencil Printer Specifications

Features and Specifications





Model	SPR-10	SPR-20	SPR-25	SPR-40	SPR-45
Linear squeegee guide	no	no	yes	yes	automatic
Adjustable power sweep squeegee for single or dual passes	no	no	manual	yes	
Dual squeegee adjustable angle of attack	no manual	no manua	yes yes	yes no	yes no
Adjustable dual squeegee pres-sure/speed	manual	manual	manual	pneumatic/manual	pneumatic/manual
Automatic power frame lift	no	no	manual	manual	yes
X & Y adjustment	± 0.500” (12.7mm)	± 0.500” (12.7mm)	± 0.500” (12.7mm)	± 0.500” (12.7mm)	± 0.500” (12.7mm)
Z axis adjustment	0 to 3/4” (19mm) (4 point leveling)	0 to 3/4” (19mm) (4 point leveling)	0 to 5/8” (16mm) single knob, self leveling	0 to 5/8” (16mm) single knob, self leveling	0 to 5/8” (16mm) single knob, self leveling
Theta adjustment	(manual alignment)	Single knob with true Ø, ± 3° range	Counter rotating dual knobs, ± 5° range	Counter rotating dual knobs, ± 5° range	Counter rotating dual knobs, ± 5° range
Adjusts to various size frames	yes	yes	Frame holder accepts any size stencil frame up to 23” x 23”	Frame holder accepts any size stencil frame up to 23” x 23”	Frame holder accepts any size stencil frame up to 23” x 23”
Clear Lexan® fixture for initial registration	no	yes (for Y and Ø)	yes (for X,Y and Ø)	yes (for X,Y and Ø)	yes (for X,Y and Ø)
Unique “foil-frame” option	yes, models FF-10/20	yes, models FF-10/20	yes, model FF-25	yes, models FF-40/45	yes, models FF-40/45
Nesting kit option for double sided PCBs	yes	yes	yes	yes	yes
Vacuum hold-down option	no	no	yes	yes	yes
Metal squeegee option	yes	yes	yes	yes	yes
Maximum print area	12” x 15” 305 x 380mm	12” x 15” 305 x 380mm	16” x 18” 406 x 457mm	16” x 18” 406 x 457mm	16” x 18” 406 x 457mm
Outside frame dimensions	20” x 17” 508 x 432mm	20” x 17” 508 x 432mm	23” x 23” 584 x 584mm	23” x 23” 584 x 584mm	23” x 23” 584 x 584mm
Approximate weight	35 lbs (13.6 kg)	50 lbs (22.7 kg)	117 lbs (53.1 kg)	150 lbs (68 kg)	160 lbs (73 kg)
Power*	NA	NA	NA	NA	110* VAC, 50/60 Hz, 2 A
Air pressure	NA	NA	NA	80 psi (5 bar)	80 psi (5 bar)
Weight with stand option	NA	NA	164 lbs (74.3 kg)	197 lbs (89.4 kg)	207 lbs (93.9 kg)
Overall dimensions	17.5”W x 27”L x 11”H 445 x 686 x 280mm	21”W x 28”L x 11”H 533 x 711 x 280mm	28”W x 33”L x 14”H 711 x 838 x 355mm	28.5”W x 33”L x 14”H 724 x 838 x 355mm	30”W x 35”L x 16”H 762 x 900 x 406mm
Height with stand option	NA	NA	45” (1143mm)	47” (1194mm)	47” (1194mm)

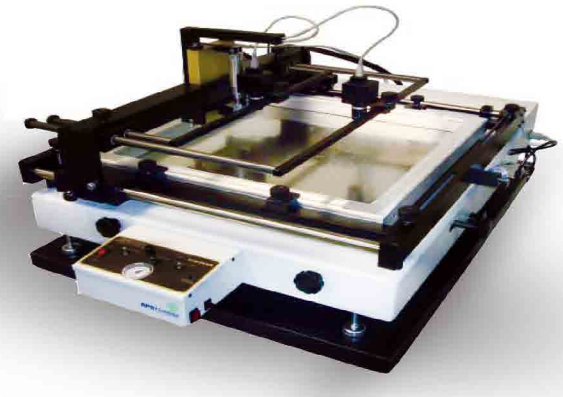
SPR-45VA SMTrue™ Vision Assist Stencil Printer

Your Economic Solution for:

Prototyping

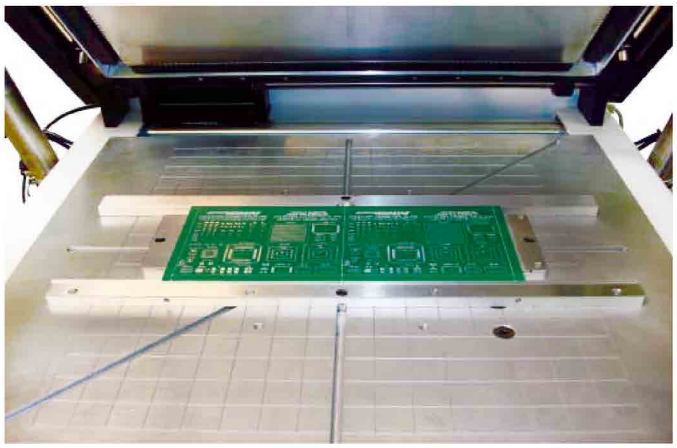
Short to Medium Run, High Mix production Environments

Printing for Ultra-fi ne QFPs, MicroBGAs, and CSPs



Features

- High Magnifi cation - 10X SMTrue Vision Assist for precise alignment of components down to 12 mil pitch
- Ultra fast, convenient, single and double-sided PCB loading and unloading
- Accurate stencil to board alignment the fi rst time...every time
- Repeatable fi ne X, Y, Z, and Theta positional adjustments



SPR-45VA Double Nesting Kit (optional) is spring loaded for quick board changes and enables stenciling of single and double sided PCB boards.

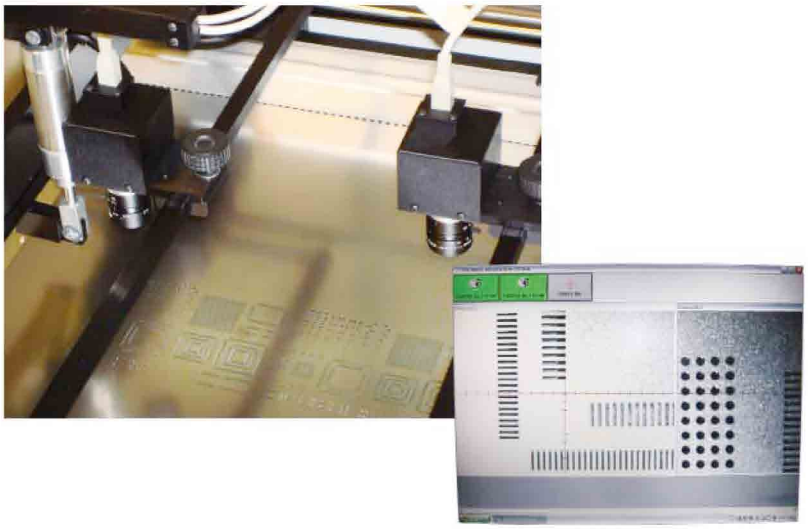
System Features

- SMTrue Vision Assist 10X magnifi cation, axial aligment of stencil to board down to 12 mil ultra fine pitch, single or dual camera, software, communication cabling, and computer
- Pneumatic adjustable power sweep squeegee for printing with single or dual stroke
- Power frame lift for higher volume production
- Fine X, Y, and Theta adjustments for exact, repeatable stencil to board print alignment
- Single Z-axis self leveling adjustment
- Quick change spring loaded double sided PCB nesting kit
- PCB vacuum hold down (optional)
- Adjustable frame holder compatible with all tubular or cast 23” x 23” framed stencils
- Adjustable, reproducible angle-of-attack squeegee adjustments
- Dual squeegee holder (urethane or metal) with independent print force adjustment for clean, convenient applications of solder paste.

Stencil Printer Specifications

Product Specifications

Printing Resolution	Down to 12 mil pitch components	X & Y adjustment	± 0.5000” (12.7mm)
Dual Squeegee	Yes	Z axis adjustment	0 to 5/8” (16mm) single knob, self-leveling
Urethane or Metal Squeegee	machine supplied with 2 of each type squeegee	Theta adjustment	Single knob to ± 5 degrees
Single or double pass	Yes	Clear Lexan® fi xture for initial registration	Yes (X, Y, and Theta)
Linear squeegee guide	Automatic	Nesting kits for single and double sided PCBs	Quick exchange, spring loaded
Adjustable angle of attack	Yes	Vacuum hold down option	Yes
Adjustable squeegee pressure	Pneumatic	Outside frame dimensions	23” x 23” (584mm x 584mm)
Adjustable squeegee speed	Pneumatic	Air Pressure	80 psi (5 bar)
Maximum print area	16” x 18” (406mm x 457mm)	System Dimensions (H x W x D)	16” x 30” x 35” (406mm x 762mm x 889mm)
Compatible stencil frame size	up to 23” x 23” (584mm x 584mm)	Height with stand option	47” (1194mm)
Foil Frame compatibility	Yes	Approximate Weight	160 lbs (68kg)
Automatic power frame lift	Yes	Power	120 VAC, 50/60Hz, 2Amp, (220-240 VAC available)



Dual cameras provide axial vision alignment of the PCB board to the stencil for precise delivery of solder paste.

Leasing Options Available...
For more information, phone us at 1-610-337-3050 or email us at info@ddmnovastar.com

SPR-10, SPR-20 Stencil Printer

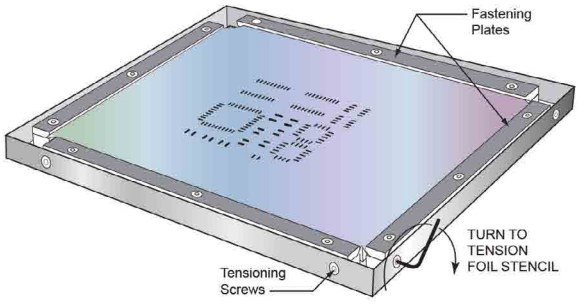
SPR-10

The SPR-10 is a cost effective manual stencil printer with a quick and easy registration method. The operator simply holds the frame on opposite edges, manually aligns the stencil openings to the board land patterns, locks the frame, and applies solder paste. The model SPR-10 uses the same tubular and foil frames as the SPR-20 printer.

- Unique alignment registration system
- Lowest cost APS manual stencil printer

Unique “Foil-Frame” option

An adapter frame kit is available for mounting frameless stencils (foils) on all DDM stencil printers. This option greatly reduces stencil costs because the stencil manufacturer need not supply a new frame with each stencil.



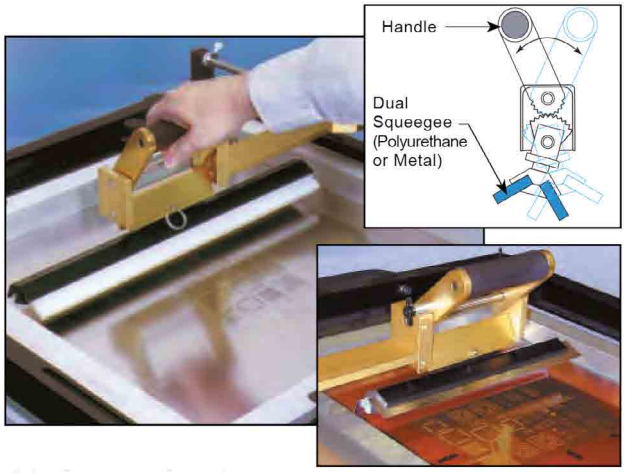
Nesting kit for double sided printed circuit boards

An adapter frame kit is available for mounting frameless stencils (foils) on all DDM stencil printers. This option greatly reduces stencil costs because the stencil manufacturer need not supply a new frame with each stencil.

SPR-20

The SPR-20 benchtop, manual stencil printer is designed for low to medium volume assembly runs. Precise X,Y, Z, and theta axis controls allow for accurate, consistent deposition of solder paste or masking material for SMT. This durable, easy-to-use system provides repeatable and reliable results.

- True theta adjustment (from exact center point) to enhance alignment ease
- Independent 4 point Z axis leveling
- Complete printing kit provides polyurethane squeegee & holder, one tubular frame, and Lexan® fixture for easy registration set-up.



Unique dual squeegee

The model SPR-25 dual blade squeegee with guide rail automatically switches when manually sliding it from back to front, or from front to back . (metal squeegee option: photo inset)

SPR-25, SPR-40, SPR-45
Stencil Printers

SPR-25

The SPR-25 benchtop, manual stencil printer is designed for low to medium volume surface mount assembly runs. Fine X,Y, Z, and theta adjustments for exact stencil-to-board alignment result inprecise, fine pitch printing of solder paste.

- Dual squeegee for clean and convenient application of solder paste
- Linear ball bearing guide assures smooth squeegee stroke with its uniqueadjustable angle-ofattack for precise single or dual direction printing
- Fine X, Y, Z and Ø adjustments for exact stencil-to-board alignment
- Adjustable frame holder compatible with any tubular or cast framed stencils up to 23" x 23" outside diameter
- Easy lift frame with gas strut assists
- Squeegee accepts polyurethane or metal blades
- PCB vacuum hold-down option

SPR-40 & SPR-45

Model SPR-40 is a semi-automatic stencil printer designed for medium volume surface mount assembly. The dual squeegee with individual pressure control makes solder paste deposition accurate and repeatable. Model SPR-45 has the same features as the SPR-40, but is more automated with its power sweep squeegee and power frame lift for higher volume runs. Even for fine pitch applications, friendly precision controls make operation of these systems simple and easy.

- Fullest featured APS stencil printers (see specs on back)
- Adjustable speed power sweep squeegee for single or dual passes (SPR-45 only)
- Fine X, Y, Z and Ø adjustments for exact stencil-to-board alignment
- Single knob Z axis self leveling adjustment
- Nesting kit option (DNK) for easy handling of double sided boards

Model
SPR-25 with stand option

Model
SPR-45 automatic printer with stand option

WAVE SOLDERS
Medium to High Volume

14”, 18” and 24” Wave Solder Machines

Features

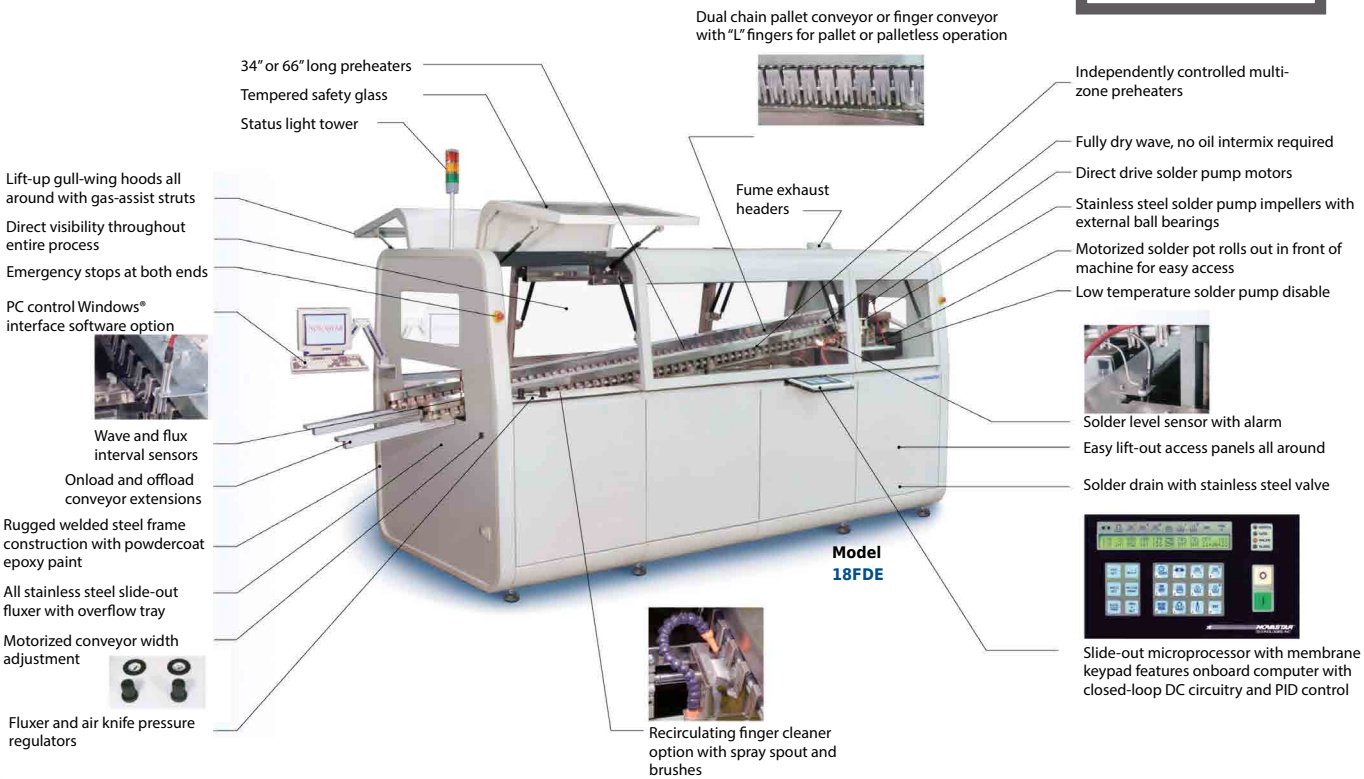
- Streamlined Design for Easy Maintenance and Cleaning
- Ultra fast, convenient, single and double-sided PCB loading and unloading
- User Friendly Programming and Operation
- Durable Construction

Options

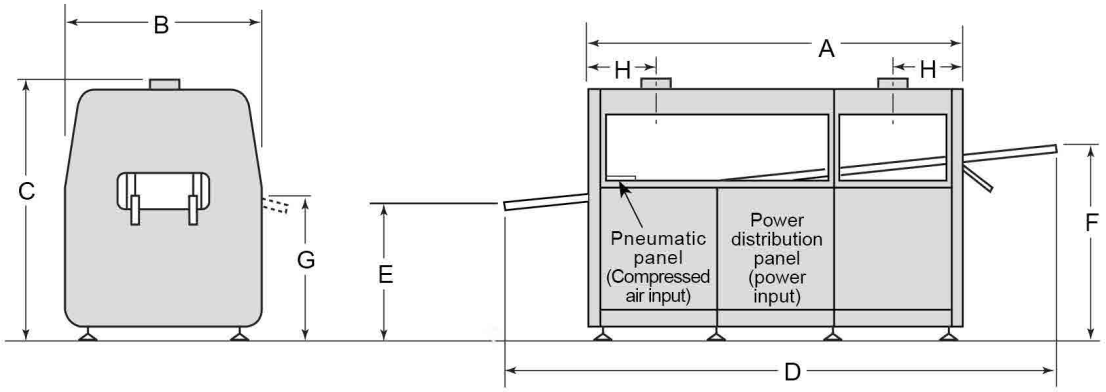
- Lead Free Soldering Capable
- Finger cleaner
- Spray fluxer
- Nitrogen inerting with GasMizerTM feature
- PC interface WindowsTM software
- Special applications & requests
- Full finger option

Exceptional value, proven performance, and flexible configurations to meet all your wave soldering needs

LEAD FREE SOLDERING CAPABLE



Wave Solder Specifications



Product Specifications

MODEL	14PD/FD/PS/FS-HT	18PD/FD/PS/FS-HT	24PD/FD/PS/FS-HT
A: Footprint length	95/2413	95/2413	95/2413
B: Width (in/mm)	55/1397	55/1397	61/1550
C: Height (in/mm)	63/1600	63/1600	63/1600
D: Overall length (in/mm)	F: 127, P: 151 F: 3226, P: 3835	F: 127, P: 151 F: 3226, P: 3835	F: 127, P: 151 F: 3226, P: 3835
E: Onload height	33.5/850	33.5/850	33.5/850
F: Offload height (in/mm)	F: 46.5, P: 51.5 F: 1181, P: 1308	F: 46.5, P: 51.5 F: 1181, P: 1308	F: 46.5, P: 51.5 F: 1181, P: 1308
G: Controller height	39/990	39/990	39/990
H: Header from end	18/457	18/457	18/457
Power*	220 VAC, 60 Hz 3Ø, 30A	220 VAC, 60 Hz 3Ø, 50A	220 VAC, 60 Hz 3Ø, 50A
Foam Fluxer Tank	1 gal/4 ltrs	1.5 gal/6 ltrs	2 gal/8 ltrs
Solder Pot Capacity	500 lbs/225 kgs	1000 lbs/450 kgs	1325 lbs/600 kgs
Max Wave Height	0-3/8”/0-10 mm	0-3/8”/0-10 mm	0-3/8”/0-10 mm
Wave Width	14”/350 mm	18”/460 mm	24”/600 mm
Minimum Board Width	2”/50 mm	2”/50 mm	2”/50 mm
Max Preheat Temp	356 °F/180 °C	356 °F/180 °C	356 °F/180 °C
Preheat Power I	4.8 kW	4.8 kW	4.8 kW
Preheat Power II	NA	NA	NA
Preheat Power III	2.0 kW	2.0 kW	2.0 kW
Total Preheat Power	6.8 kW	6.8 kW	6.8 kW
Max Solder Pot Temp	575 °F/300 °C	575 °F/300 °C	575 °F/300 °C
Max Lead Free Pot Temp	662 °F/350 °C	662 °F/350 °C	662 °F/350 °C
Solder Pot Power	4.5 kW	7.5 kW	9.5 kW
Approx Warm-up Time	100 minutes	120 minutes	150 minutes
Max Conveyor Speed	8 ft/min (2.5 m/min)	8 ft/min (2.5 m/min)	8 ft/min (2.5 m/min)
Compressed Air	10 CFM @ 60 PSI (17 m3/hr @ 4 bar)		
Exhaust requirements	Two 6” dia. headers @ 300 CFM each (600 CFM total) Two 150 mm dia. headers @ 500 m3/hr each (1000 m3/hr total)		
Conveyor	6 degree incline, left to right operation, front fixed rail - rear moveable rail (motorized)		

P= pallet conveyor, F= finger conveyor, S= single wave, D= dual wave
*Other electrical configurations available; contact factory for details

WAVE SOLDERS
Low to Medium Volume

Spartan series 8S, 8D, 12S and 12D

Your Economic Solution for Easy Start-Up of PCB Production

- Streamlined Design for Easy Maintenance and Cleaning
- Ultra fast, convenient, single and double-sided PCB loading and unloading
- User Friendly Programming and Operation
- Durable Construction

Standard features

- Single or dual wave
- Stainless steel foam fluxer
- Computer control includes:
  - 10 menu storage
  - RS-232 serial interface
  - SPC online or offl ine data logging
  - Fault monitoring & reporting
  - Low solder indicator
- On board air compressor
- Dual preheaters with heat tunnel and forced air convection
- Wave and flux interval sensors
- Status light tower
- Slide-out fl uxer with drip tray
- Compatible with VOC free fl uxes
- Full one year warranty

Options

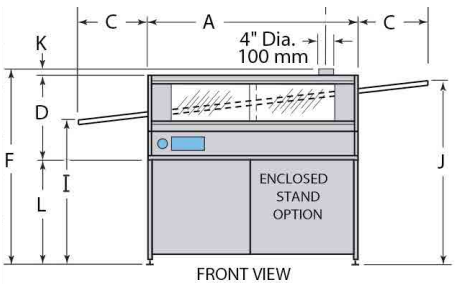
- Enclosed Stand
- Flux Air-Knife
- Additional Pallets
- Extra-Long Pallets
- Nitrogen Inerting

LEAD FREE SOLDERING CAPABLE

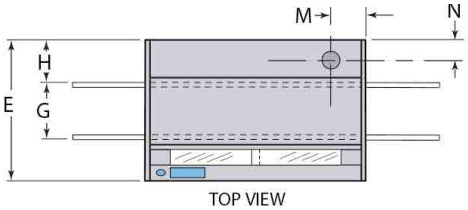
Computer Control

Wave Solder Specifications

SPECIFICATIONS	8S-HT (single wave)	8D-HT (dual wave)	12S-HT (single wave)	12D-HT (dual wave)
Power	220 VAC, 60 Hz 1Ø, 30A	220 VAC, 60 Hz 1Ø, 40A	220 VAC, 60 Hz 1Ø, 50A	220 VAC, 60 Hz 3Ø, 20A
Foam Fluxer Tank	0.5gal/2ltrs	0.5gal/2ltrs		
Solder Pot Capacity	125 lbs/57 kgs	125 lbs/90 kgs	250 lbs/114 kgs	375 lbs/170 kgs
Max. Wave Height	0-3/8”/0-10mm	0-3/8”/0-10mm	0-3/8”/0-10mm	0-3/8”/0-10mm
Wave Width	8”/203mm	8”/203mm	11.8”/300mm	11.8”/300mm
Max. Preheat Temp.	300°F/150°C	300°F/150°C	300°F/150°C	300°F/150°C
Preheat 1 Power	2.25 kW	2.25 kW	4.0 kW	4.0 kW
Preheat 2 Power	1.5 kW	1.5 kW	2.0 kW	2.0 kW
Max. Solder Pot Temp.	575°F/300°C	575°F/300°C	575°F/300°C	575°F/300°C
Lead Free Pot Temp.	662°F/350°C	662°F/350°C	662°F/350°C	662°F/350°C
Solder Pot Power	2.5 kW	3.2 kW	3.6 kW	7.2 kW
Approx. Warm-up Time	40 min.	40 min.	50 min.	50 min.
Max. Conveyor Speed	6 ft/min (2m/min)	6 ft/min (2m/min)	6 ft/min (2m/min)	6 ft/min (2m/min)
Pallet	STD: 8” x 11.4” 200 x 290mm	STD: 8” x 11.4” 200 x 290mm	STD: 12” x 15.8” 300 x 400mm	STD: 12” x 15.8” 300 x 400mm
Dim. (in/mm) A	66.5/1690	66.5/1690	79/2007	79/2007
B	96.5/2451	96.5/2451	118/2997	118/2997
C	14/355.6	14/355.6	19.5/495.3	19.5/495.3
D	20/508.0	20/508.0	24/609.6	24/609.6
E	31/787.4	31/787.4	39/990.6	39/990.6
F	50/1270.0	50/1270.0	54/1371.6	54/1371.6
G	11.5/292.1	11.5/292.1	16.5/419.1	16.5/419.1
H	8.8/223.5	8.8/223.5	10.8/274.3	10.8/274.3
I	33/838	33/838	33/838	33/838
J	45/1143	45/1143	46/1169	46/1169
K	2/50.8	2/50.8	2/50.8	2/50.8
L	28/711.2	28/711.2	28/711.2	28/711.2
M	14/356	14/356	15/381	15/381
N	4.5/114	4.5/114	5/127	5/127
Venting Requirement	300 CFM/500 m3/h max., 4” /100 mm Dia. Flange			



FRONT VIEW



TOP VIEW

Leasing Options Available...

For more information, phone us at 1-610-337-3050

or email us at info@ddmnovastar.com

EWS-310 Wave Soldering Machine

Your Economic Solution for:

Prototyping

Product Development

Short Run, High-Mix

Manufacturing Applications

Features

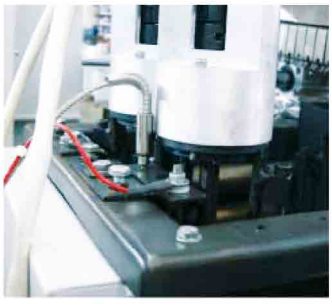
- Quickly load and unload PCBs with finger conveyor
- User friendly touch screen LCD for programming and parameter adjustment
- Continuously adjustable PCB width from 1 to 12 inches
- Streamline design for Easy Maintenance and Cleaning

System Features

- Finger conveyor for pallet-less operation
- Visibility throughout entire process with clear viewing Plexiglass® hoods
- Onload and offl oad conveyor extensions
- Durable, rugged welded steel frame construction
- Fully dry wave, no oil intermix required
- Stainess steel solder pump impellers with external ball bearings
- Laminar wave for through hole component soldering
- Motorized conveyor width adjustment
- Fluxer and air knife pressure regulators
- Solder level sensor alarm
- Solder drain with stainless steel valve
- On-board profiler
- Lead-free solder capable

Dual Wave Option shown above - turbulant wave for SMD (option-al) and laminar wave for through-hole soldering.

Recirculating finger cleaner option with spray spout and brushes



Solder level sensor with alarm

Wave Soldering Machine Specifications

Product Specifications

PCB Width	30 to 300mm (1 to 12”)	Max. Preheat Temperature 1	150°C (302°F)
Board Handling	Fingers	Preheat 1 Power	4.8 kW
Maximum Wave Height	0 to 10mm (0 to 3/8”)	Max. Preheat Temperature 2	200°C (392°F)
Solder Pot Capacity	single wave - 90kgs (200 lbs.) dual wave - 170kgs (375 lbs.)	Preheat 2 Power	2.0kW
Max. Leaded Solder Pot Temperature	300°C (572°F)	Preheat Length	870mm (34.25”)
Max. Lead-free Solder Pot Temperature	350°C (662°F)	Preheat Method	IR + Convection
Quick Change Lead to Lead-free Solder System	Yes	Solder Pot Power Capacity	single wave - 3.6 kW dual wave - 5.2 kW
Approximate Warm-up Time (for leaded solder)	60 minutes	Machine Operating System	Color graphic LCD with touch screen
Max. Conveyer Speed	2.5 m/min (98.4”/min)	Power	220V, 3 phase, 60Hz
Soldering Angle	6 degrees	Power Consumption	single wave - 11 kW dual wave - 12.2 kW
Foam Fluxer Tank	3 liters (0.8 gal.)	Warranty	1 year
Compressed Air	Max 30 psi on system with air knife	Machine Dimensions	2500 x 1100 x 1550mm (98.43” x 43.31” x 61.02”)

Options

- Optional turbulent wave for SMD applications
- Optional quick change lead-free/ lead solder pot trolley system
- Finger Cleaner
- Spray fluxer
- Nitrogen inerting with GasMizerTM feature

Motorized roll-out pot provides easy access.

Finger conveyor for pallet or pallet-less operation.

Independently controlled infrared and forced air convection preheaters compatible with VOC-free fluxes.

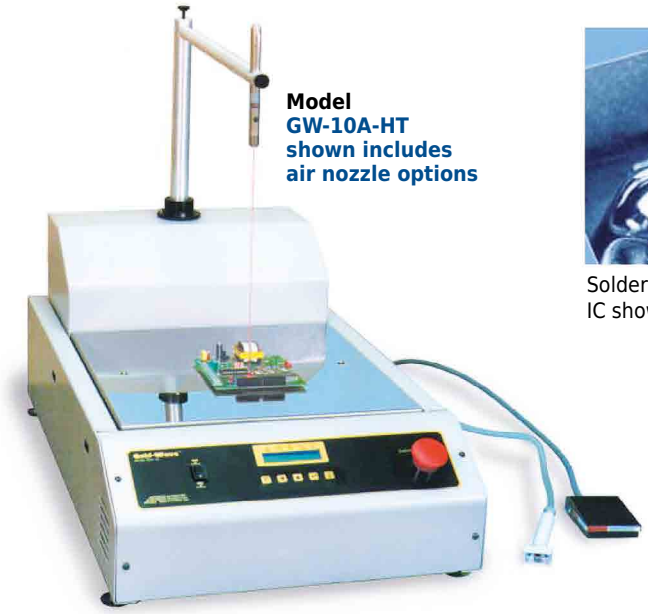
Leasing Options Available...

For more information, phone us at

1-610-337-3050 or email us at info@ddmnovastar.com

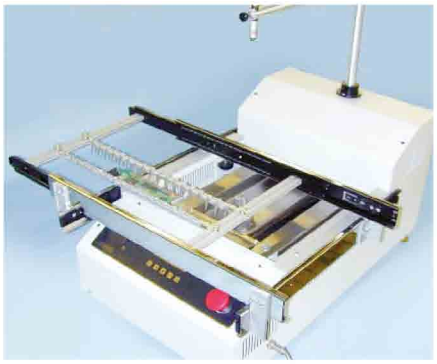
GW-10A-HT and GW-10-HT Soldering Fountain

LEAD FREE SOLDERING CAPABLE



Model GW-10A-HT shown includes air nozzle options

Solder wave for 14-20 pin IC shown (WN-10 nozzle)



Universal Board Fixture (UBF) option

Models

GW-10A-HT, GW-10A-HT

Compatible with both lead and lead-free applications

• Connectors, • DIPs

• PGAs, • Sockets,etc.

Standard Features

- The DDM Novastar soldering system is used for the removal and replacement of through-hole components connectors, etc. mounted on PC boards.
- Microprocessor based, digital controller regulates:
  - solder temperature
  - wave height
  - solder flow duration
  - air “blow-through” duration (GW-10A-HT only)
- 10 menu storage
- “Blow-thru” hot air nozzle option removes solder remaining in through-holes during rework process.
- X, Y, & Z Universal Board Fixture option allows quick and easy board positioning over the wave
- Overhead locator laser light pinpoints position for centering component over the wave.
- A large selection of nozzles for all component sizes is available. (14-20 pin DIP standard)
- Height adjustable stainless steel platform.
- Easy to change bayonet mount nozzles for a variety of rework or selective soldering applications.

Specifications	GF-125 HC/HT
Power	120 VAC, 60 Hz, 15 A optional 220 VAC, 50/60 Hz, 8 A
Max solder temp (GW-10/10A-HT)	350°C (662°F)
Solder capacity	50 lbs (23Kg)
Compressed Air (GW-10A only)	60 PSI (4 bar)
Dimensions	16”x26”x17” (406x660x432 mm)
Warm-up time	Approx. 30-45 min
Weight	30 lbs empty (13.5Kg), 80 lbs (36 Kg) with solder
GW-10 - HT	Solder Fountain
GW-10A - HT	Solder Fountain with blow-through air nozzle
GW-UBF	Universal X, Y, & Z Board Fixture Option for board sizes up to 11” x 16.5” (280 x 420 mm)

Device Type	Available Nozzle Sizes	Wave Nozzle #	Air Nozzle #
14-20 pin DIP	1.00” x 0.50” (25 x 13 mm)	WN-10	AN-10
24-28 pin DIP	1.50” x 0.75” (38 x 19 mm)	WN-20	AN-20
30-48 pin DIP	2.50” x 0.75” (64 x 19 mm)	WN-30	AN-30
PGA	1.00” x 1.00” (25 x 25 mm)	WN-40	AN-40
PGA	1.50” x 1.50” (38 x 38 mm)	WN-50	AN-50
PGA	2.00” x 2.00” (50 x 50 mm)	WN-60	AN-60
Flat connectors	2.75” x 0.35” (70 x 9 mm)	WN-70	AN-70
Large connectors	4.00” x 0.75” (102 x 19 mm)	WN-80	AN-80
Custom nozzles available (5 in2 max., e.g. 1.25” x 4”)			

GF-DL-HT Hot Plates
GF-SL-HT Hot Plates

For preheat,rework and reflow!

Standard Model: GF-DL dual hot plate

Lead Free Model: GF-DL-HT

Used for a variety of heating applications which include preheat, rework, reflow and curing of printed circuit board assemblies.

Standard Model: GF-SL single hot plate

Lead Free Model: GF-SL-HT

GF-SL/DL Features:

- Lead free capable option: HT model
- Large 13” x 13” heating area
- 3/4” thick aluminum heat plates for precise, even heating
- Programmable digital temperature controller precisely and automatically regulates temperatures
- Model GF-DL is the same as GF-SL above but with two independent temperature controls and dual 13” x 6.4” plates.

LEAD FREE SOLDERING CAPABLE

Model GF-DL Specifications	
Electrical Power**	110 VAC, 50/60, 20A
Power	900 W each plate
Temperature Range Standard model: GF-DL	100° to 482°F (37° to 250°C)
Temperature Range High Temp: GF-DL-HT	100° to 600°F (37° to 315°C)
Heating Area (x2)	13” x 6.4” (330x163mm)
Dimensions	22.63” x 15.25” x 4.50” (575 x 387 x 114 mm)
Approximate Weight	35 lbs (16Kg)

Model GF-DL Specifications	
Electrical Power**	110 VAC, 50/60
Power	1800 W
Temperature Range Standard model: GF-DL	100° to 482°F (37° to 250°C)
Temperature Range High Temp: GF-DL-HT	100° to 600°F (37° to 315°C)
Heating Area (x2)	13" x 13" (330x330mm)
Dimensions	22.63” x 15.25” x 4.50”(575 x 387 x 114 mm)
Approximate Weight	35 lbs (16Kg)

InterElectronic

www.interelectronic.com

1222 Budapest, Gyár St 15.
Phone: +36 1 225-74-15
Phone/Fax: +36 1 207-37-26
E-mail: info@interelectronic.com

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