Speedline technologies

Speedline brings you proven, lead-free processing performance in two world-class solutions: Electra for high-volume manufacturers, and VectraElite for medium-to-high-volume production.

Electrovert®

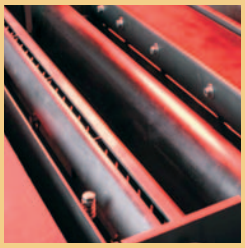
Electra® and VectraElite™
Wave Soldering Systems

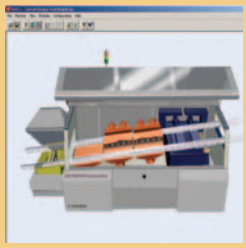
VectraElite

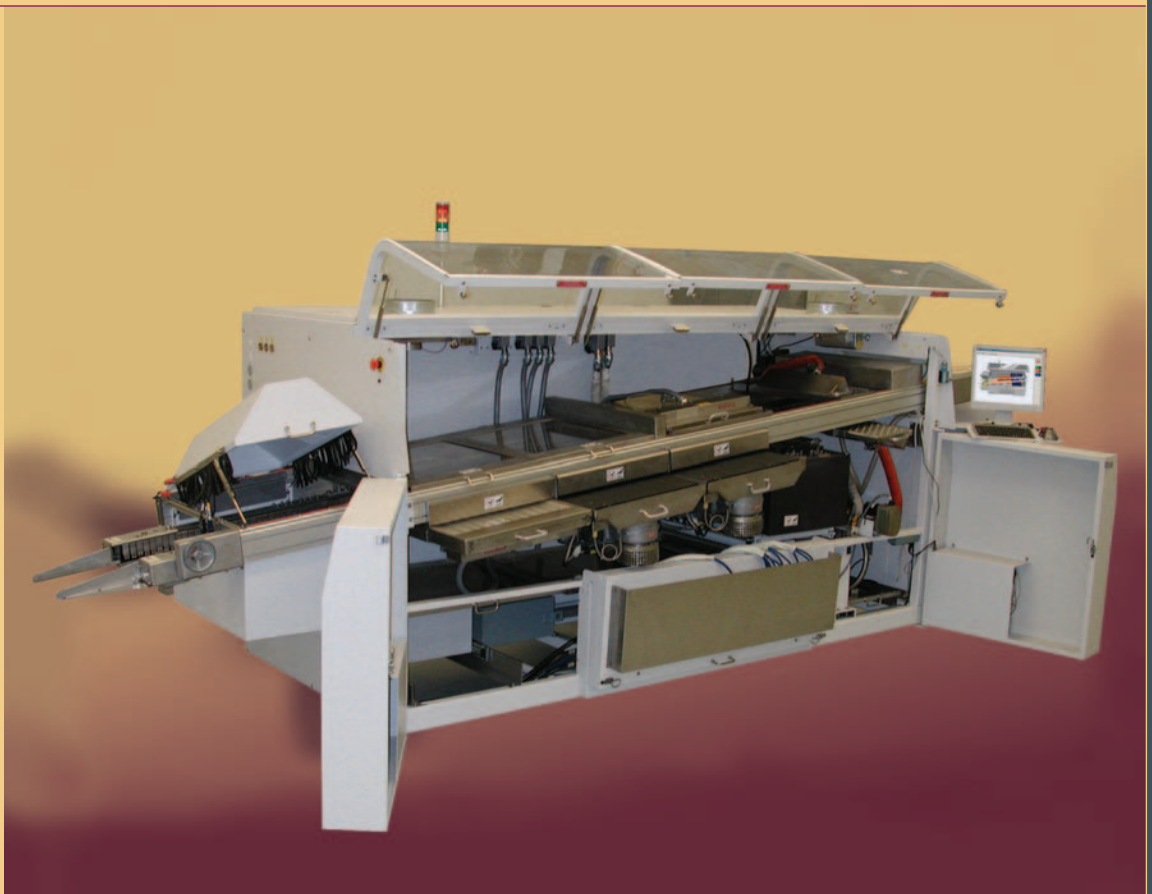
Zero-Defect Process at the Lowest Cost of Ownership

Advanced technology of the VectraElite package separates it from the competition

- ServoSpray™ spray fluxing system with self-cleaning capability
- Four feet of bottom Vectaheat forced convection preheat technology
- Recipe-driven nozzle technology
  - Patented UltraFill with FloLift main wave
- Recipe-driven solder pot height adjustment (auto lead clearance)
- Wet finger cleaning system





The VectraElite system is the wave soldering solution for medium-to-high-volume production that requires fast changeover, process flexibility, and system reliability. The VectraElite combines innovative technology in an accessible, ergonomic platform and provides the tools necessary to achieve a zero-defect process at the lowest possible cost of ownership.

Electrovert

Electra

Electra's proven performance has provided the electronics assembly industry with world-class soldering results. The Electra system is designed with computerized, closed-loop controls that deliver the required accuracy and repeatability for demanding production environments. Its intuitive operator interface provides easy recipe set-up within the Windows® operating system. Designed for high volume and maximum process flexibility, The Electra is a highly advanced, precision-engineered wave soldering system.

Proven Performance, World-Class Results

The Electra, with its core technology, is the industry benchmark when it comes to advanced wave soldering systems.

- Patented ServoJet™ spray fluxing system featuring FluxJet™ technology
- Four feet of bottom Vectaheat™ forced convection preheat technology
- Recipe-driven dual wave nozzle technology
  - Patented UltraFill™ with FloLift™ main wave
  - Non-clogging Rotary™ with FloLift chip wave technology
- Recipe-driven solder pot height adjustment (auto lead clearance)
- Wet finger cleaning system
- Recipe-driven auto width adjust conveyor system




Consideration must be given to a wave soldering system's ability to operate effectively in harsh environments. Speedline Technologies provides not only equipment designed for lead-free and demanding applications, but also the process knowledge to assist with challenging applications.

Lead-Free Process Capability

At Electrovert, our Electra and VectraElite wave soldering systems have been designed to handle lead-free and ddifuclt applications for many years. The cast iron solder pot and its components are resistant to the corrosive nature of lead-free solders and are capable of withstanding temperatures of 315°C (600°F). All stainless steel components that come into contact with the solder are composed of ElectroCoat™ corrosion-resistant surface conversion as a standard feature, or grade 1 (pure) titanium as an option.

Nitrogen Process Atmosphere

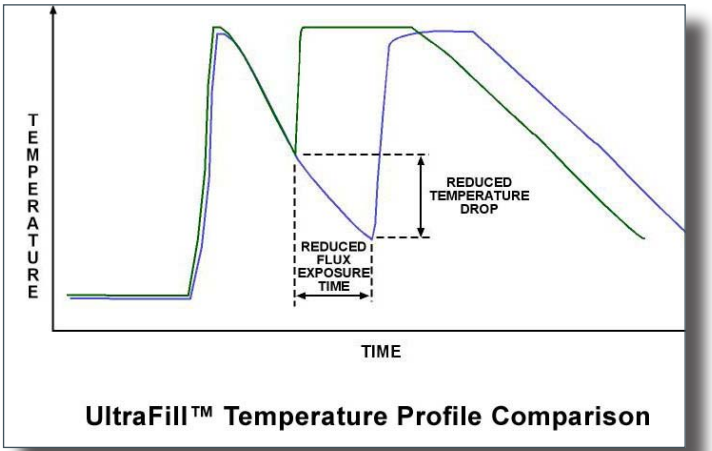
- Recipe-driven nitrogen soldering is an available option to both the Electra and VectraElite via patented boundary nozzle technology
- Wetting times reduced via nitrogen
- Provides improved hole fill and fewer shorts
- Requires less flux
- Reduces dross generation - extends run time
- Improves first pass yields and cosmetics

UltraFill with FloLift Technology

- Patented boundary layer system
- Designed for air or nitrogen operation
- Minimizes temperature drop between Rotary Chip and main wave
- Promotes hole fill and bridge reduction for lead-free applications
- Dross generation reduced by up to 50%
- Lift-up cover provides access for easy maintenance

HVC™ (High-Velocity Convection) Topside Preheat

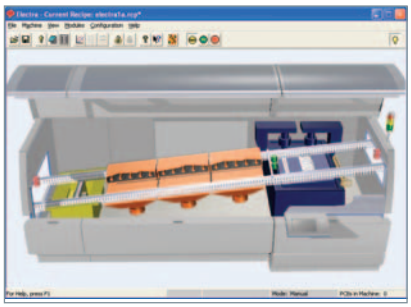
- Finned medium mass heater with dual variable speed convection fans
- Provides even topside preheat
- Reduced thermal variation both across the assembly and top to bottom
- Promotes topside hole fill



UltraFill™ Temperature Profile Comparison

Operator Interface

Windows Operating System

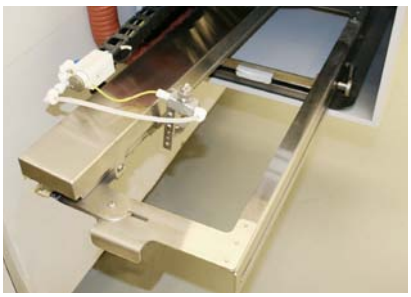


Both the Electra and VectraElite are configured with a Windows® operating system that provides pull-down menus. They offer the capability of networking to other computers for downloading recipes and remote access to operating data.

Features

- Process notes function allows the operator to gain work and process instructions tied to the recipes via a link to a data storage server
- Data logging traceability feature enables the user to select the important process parameters for which data collection is desired, either board-based or time-based
- Security password protection allows only authorized personnel to make changes to recipes
- The Electra operator interface allows the user to enter setup parameters while viewing the process by sliding the control station along the front of the machine

Slide-Out Fluxer Module



Fluxer Module

The fluxer module consists of a slide-out drawer mounted inside the fluxer cradle for easy maintenance. Both systems provide onboard storage for flux tanks. The internal exhaust design segregates flux fumes from the rest of the machine.

Spray Fluxers

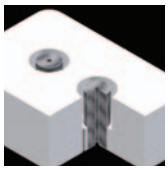
ServoSpray

- Standard spray fluxing system provided with the VectraElite
- Servo-controlled reciprocating spray fluxing system
- Features air atomized spray technology
- Ability to spray in one or both directions of travel
- Pressure tank flux delivery system
- Self-clean nozzle function
- Economical spray fluxing system

ServoSpray

ServoJet

Flux Jetting Technology

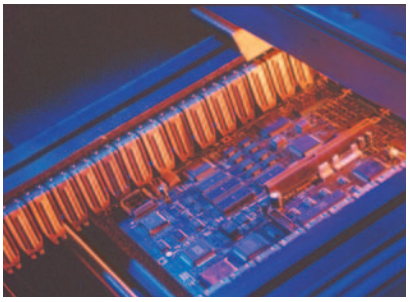


ServoJet

- Standard spray fluxing system provided with the Electra (optional with the VectraElite)
- Patented FluxJet nozzle technology with concentric air atomization provides superior hole penetration
- Servo-controlled reciprocating spray fluxing system
- Advanced, area-specific programmable selective spray capability
- Pressure tank flux delivery system
- Self-clean nozzle function
- Exceptionally high transfer efficiency ensures reduced flux usage
- Superior hole penetration and uniformity provide maximized yield

Advanced Selective Programming

Conveyor System



Finger Cleaner

Conveyor Module

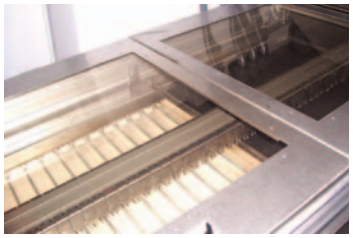
A robust finger conveyor system provides process width capability up to 18” (460 mm) [20" (508mm) optional] on the VectraElite and 20" (508 mm) [24” (609 mm) optional] on the Electra. Titanium finger configurations provide the ability to support PCB's as well as selective solder pallets and fixtures. Additional standard features of the conveyor system include a wet finger cleaning system with low liquid level alarm, AC drive motor, universal load guides/chain guards, and adjustable incline capability. Recipe-driven conveyor width adjust is a standard feature on the Electra and an available option on the VectraElite.

Vectaheat Preheater

Preheat Module

The preheat section, ranging from four to six feet on the VectraElite and up to eight feet on the Electra, ensures sufficient topside temperatures on the most complex assemblies. Both systems are configured with two bottom Vectaheat modules. Radiant (infrared - IR) preheat panels or Vectaheat modules can be easily interchanged with the convenient slide-out feature and quick-disconnect plugs.

Radiant Preheater



Radiant Preheat Panels (IR)

- Utilizes pyro-ceram glass over standard IR bulbs
- Most advanced form of IR preheat technology
- Maximized temperature uniformity and minimized Δ T's

HVC Preheater

Vectaheat Forced Convection Preheat Technology

- Single, one-piece module
- High thermal mass heating panel
- Sealed blowers
- Solder spill detection

HVC (High-Velocity Convection) Topside Preheat

- Finned medium mass heater with dual variable speed convection fans
- Provides even topside preheat
- Reduced thermal variation both across the assembly and top to bottom
- Promotes topside hole fill

Electrical Panel Accessibility

Accessibility

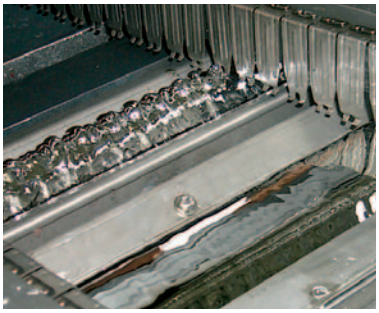
Exceptional machine access is achieved via lift-up hoods, fold down tail-gate (Electra), a fold down pneumatic panel and swing out corner panels (VectraElite). The rear of the system has several access doors that open to expose the electrical panels, fluxer, flux tank and solder pot.

- All major components are on slides for easy maintenance
- Easily accessible solder pot heating panels
- The Electra includes an integrated step platform for viewing the soldering process

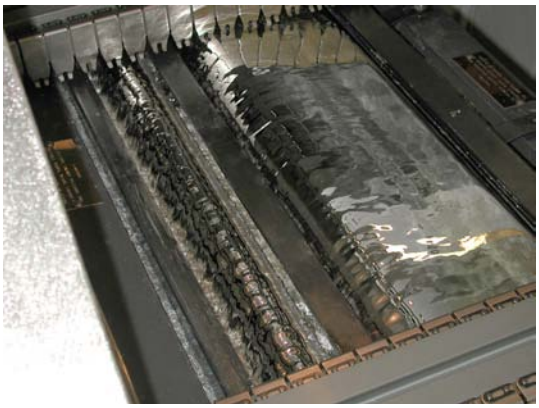
Electra Step Platform

N_2 Controls

Rotary Chip with FloLift



UltraFill with FloLift



ExactaWave

Solder Module

Electrovert's Electra and VectraElite wave soldering systems feature a high-capacity cast iron roll-out solder pot and low-maintenance pump with AC motors. Configured with patented UltraFill with FloLift nozzle technology, the Electra and VectraElite systems ensure the best possible process yields with today's lead-free alloys. System controls include a programmable 7-day timer, closed-loop temperature and variable wave height adjustment, high/low alarms, auto start/stop wave function, and exhaust interlock protection. Both systems also include automatic, recipe-driven solder pot height control (auto lead clearance control) as a standard feature. This is a significant process tool for ensuring repeatability and process control.

Rotary Chip with FloLift Technology

- Rotating auger-type design pushes the solder to provide maximum wetting of components
- Non-clogging design virtually eliminates skips or misses

Patented UltraFill with FloLift Technology

- Patented boundary layer system
- Designed for air or nitrogen operation
- Minimizes temperature drop between rotary chip and main wave
- Promotes hole fill and bridge reduction for lead-free applications
- Dross generation reduced by up to 50%
- Lift-up cover provides access for easy maintenance

Omega™

- Paddle design provides gentle agitation to the center of the wave to facilitate soldering of SMT components
- Aids in hole fill for difficult-to-solder boards

ExactaWave™

- Patented method to measure the height of the solder wave relative to the PCB in the conveyor
- Maintains consistent wave height within ± 0.05 mm (0.002") to avoid defects and improve productivity
- Exceptional process control feature

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FEATURE		ELECTRA	VECTRAELITE
Process Width		2" to 20" (50 mm to 508 mm); 2" to 24" (50 mm to 609 mm) opt.	2" to 18" (50 mm to 460 mm) 2" to 20" (50 mm to 508 mm) opt.
Machine Length		150.5" (3823 mm)	122.7" (3117mm)
Machine Length with External Fluxer		175.5" (4458 mm)	154.5" (3925mm)
Machine Width		64.4" (1636 mm)	61" (1557mm)
Machine Height		72" (1829 mm)	68" (1727mm)
Fluxer	ServoJet	S	O
	ServoSpray	N/A	S
Preheat	Length	6' (1.8 m) with internal fluxer up to 8' (2.4 m) with external fluxer	4' (1.2 m) with internal fluxer 6' (1.8 m) with external fluxer
	High Velocity Convection (HVC)	O	O
	I/R Preheat	O	O
	Vectaheat	S (2 bottom)	S (2 bottom)
	Combination mix	O	O
Wave	Rotary chip	S	O
	UltraFill	S	S
	ExactaWave	O	O
	Auto Lead Clearance	S	S
Conveyor	Automatic Width	S	O
	Finger Cleaner	S	S
Exhaust requirements		Three (3) 8" (208 mm) stacks; port 1 - 650 cfm; port 2 - 925 cfm; port 3 - 200 cfm	Two (2) 8" (208 mm) stacks; port 1 - 450 cfm; port 2 - 650 cfm
Air requirements		60 to 120 psig (415 to 830 kPa)	60 to 120 psig (415 to 830 kPa)
Nitrogen requirements		0.5" FNPT inlet fitting with 100 to 120 psig (690 to 830 kPa)	0.5" FNPT inlet fitting with 60 to 120 psig (415 to 830 kPa)

O — Optional; S — Standard

Process Knowledge and Support

At Speedline Technologies, we deliver world-class products, performance, and unparalleled service and support programs. With the Electra and VectraElite comes the proficiency of our Electrovert process experts that allows us to solve real-world applications issues. Knowledge in Process for superior performance.

ABOUT SPEEDLINE TECHNOLOGIES

Speedline Technologies is the global leader in process knowledge and expertise for the PCB assembly and semiconductor industries. Based in Franklin, Massachusetts, U.S.A., the company markets five best-in-class brands – Accel microelectronics cleaning; Camalot dispensing systems; Electrovert wave soldering, reflow soldering, and cleaning equipment; MPM stencil and screen printing systems; and Protect global services, support, and training solutions. For more information, visit us at www.speedlinetech.com.

Speedline Technologies maintains an ongoing program of product improvement that may affect design and/or price. We reserve the right to make these changes without prior notice or liability.

Speedline technologies

Knowledge in Process