

ELECTROVERT Oven Operations and Maintenance Courses

This course provides numerous practical “hands-on” operations and maintenance exercises that put to practice classroom theory following *PBET standards. The students are given theory, operations, and maintenance training necessary to develop the techniques and knowledge required to perform maintenance of the OmniMax, OmniES, OmniFlo, OmniFlex, Bravo, or OmniExcel oven systems. Each student, upon successful completion of the skills criteria and course objectives, will receive a certificate of competence for the Oven Operation and Maintenance Course.

Intended Audience:

All individuals responsible for the primary maintenance and/or proper day-to-day operations of the reflow soldering process.

Objectives:

Upon completion of the course and accomplishment of the skills criteria, the student will be qualified to program and perform maintenance on ELECTROVERT oven systems and will be able to:

- Identify machine components and basic theory
- Define machine safety concerns
- Identify machine options
- Navigate operation screens and user levels
- Administer user level passwords
- Define the 4 key elements of Reflow SMT
- Configure the system software, develop, enter and save recipes
- Identify and define the elements of a profile
- Adjust the conveyor rail parallelism and speed calibration
- Perform testing of the various heater module components and there sub systems
- Perform suggested preventive maintenance
- Define and troubleshoot main system elements using electrical schematics, block diagrams, and signal / voltage meters
- Perform file management functions
- Review machine configuration setting

Prerequisites:

Ability to use meters, hand tools, etc., Basic electro-mechanical skills, Ability to read / interpret engineering drawings

Course Duration:

	<u>Length</u>	<u>Start</u>	<u>End</u>
OmniFlo/Bravo/OmniExcel	4.0 Days	Monday 9:00 a.m.	Thursday 5:00 p.m.
OmniFlex/OmniMax/OmniES			

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the courses' end time.

All courses are structured according to PBET standards. The PBET standards, developed by the Technician Training Council and sponsored by SEMATECH and SEMI/SEMITECH and include the following six concepts that are integrated into every course:

- Derive performance objectives from analysis
- Establish course content from performance objectives
- Identify prerequisite skills
- Maximize hands-on practice
- Develop skill tests to measure competency
- Repeat practice and skill tests until mastery of each objective is achieved per course objectives

ELECTROVERT Wave Series Maintenance & Operations

This course provides numerous practical “hands-on” maintenance and operations exercises that put to practice classroom theory following *PBET standards. The students are given theory, operations, and preventive maintenance training necessary to develop the techniques and knowledge required to perform scheduled preventive maintenance of the wave soldering systems. Each student, upon successful completion of the skills criteria and course objectives, will receive a certificate of competence for the wave soldering system’s maintenance and operations course.

Intended Audience:

All individuals responsible for the in-depth maintenance of the wave soldering system, or anyone involved with the improvement of the wave soldering process.

Course Objectives:

Upon completion of the course and accomplishment of the skills criteria, the student will be qualified to perform maintenance and operate the ELECTROVERT wave series systems and will be able to:

- Perform system operations safely observing all safety rules.
- Level system and verify facility supply connections.
- Perform proper power up/down of system and all safety interlock checks.
- Successfully navigate system software.
- Perform operations in manual and automatic modes of operation.
- Perform software backup and restore operations.
- Perform conveyor system maintenance including cleaning, lubrication, and finger replacements.
- Perform fluxer system maintenance including spray head and band cylinder maintenance.
- Test fluxer system for proper operation.
- Perform preheater system maintenance including cleaning and element replacement.
- Perform solder pot maintenance including nozzle and flow duct cleaning and alignment.
- Perform solder pump rebuild.

Prerequisites:

Ability to use meters, hand tools, etc., Basic electro-mechanical skills, Ability to read / interpret engineering drawings. The ability to lift approximately 50 pounds

Course Duration:

	<u>Length</u>	<u>Start</u>	<u>End</u>
Vectra/VectraES/EPK Electra/VectraElite	4.0 Days	Monday 9:00 a.m.	Thursday 5:00 p.m.

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the courses' end time.

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- Derive performance objectives from analysis
- Establish course content from performance objectives
- Identify prerequisite skills
- Maximize hands-on practice
- Develop skill tests to measure competency
- Repeat practice and skill tests until mastery of each objective is achieved per course objectives

ELECTROVERT Wave Series Troubleshooting & Calibration

This course provides numerous practical “hands-on” troubleshooting and calibration exercises that put to practice classroom theory following *PBET standards. The students are given electrical and software training necessary to develop the techniques and knowledge required to calibrate and perform in-depth troubleshooting of the wave soldering system. Each student, upon successful completion of the skills criteria and course objectives, will receive a certificate of competence for the wave soldering system’s troubleshooting course.

Intended Audience:

Individuals responsible for the in-depth maintenance of the wave soldering system, or anyone involved with the improvement of the wave soldering process.

Course Objectives:

- Perform system operations safely observing all safety rules.
- Identify system vital signs and the related significance they hold.
- Interpret system drawings and identify symbols and part numbers.
- Check system safety interlocks and E-Stop functions.
- Identify all system communications links and ports.
- Setup and calibrate motion system control functions.
- Setup and calibrate system temperature control functions.
- Test heaters for proper operational characteristics.
- Utilize system drawings and software to isolate digital I/O faults.
- Utilize system drawings and software to isolate analog I/O faults.
- Log in to Windows as Administrator and utilize diagnostic screens.
- Create an emergency repair disk, and perform scandisk functions

Prerequisites:

Ability to use meters, hand tools, etc., Basic electro-mechanical skills, Ability to read / interpret engineering drawings. The ability to lift approximately 50 pounds. Attendance of the Operations and Maintenance course. 6 months experience of machine maintenance / operations.

Course Duration:

	<u>Length</u>	<u>Start</u>	<u>End</u>
Vectra/VectraES/EPK	4.0 Days	Monday 9:00 a.m.	Thursday 5:00 p.m.
Electra/Vectra Elite			

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the courses’ end time.

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- Derive performance objectives from analysis
- Establish course content from performance objectives
- Identify prerequisite skills
- Maximize hands-on practice
- Develop skill tests to measure competency
- Repeat practice and skill tests until mastery of each objective is achieved per course objectives

ELECTROVERT Cleaning Series Maintenance & Operations

This course provides numerous practical “hands-on” troubleshooting and calibration exercises that put to practice classroom theory following *PBET standards. The students are given electrical and software training necessary to develop the techniques and knowledge required to calibrate and perform in-depth troubleshooting of the cleaning system. Each student, upon successful completion of the skills criteria and course objectives, will receive a certificate of competence for the wave soldering system’s troubleshooting course.

Intended Audience:

Individuals responsible for the in-depth maintenance of the cleaner system, or anyone involved with the improvement of the cleaning process.

Course Objectives:

- Perform system operations safely observing all safety rules.
- Perform proper power up/down of system and all safety interlock checks.
- Perform operations in manual and automatic modes of operation.
- Perform conveyor system maintenance including cleaning, lubrication.
- Test spray bar system for proper operation.
- Perform heater system maintenance including cleaning and element replacement.
- Perform tank maintenance including filter and flow duct cleaning and alignment.
- Identify system vital signs and the related significance they hold.
- Interpret system drawings and identify symbols and part numbers.
- Check system safety interlocks and E-Stop functions.
- Utilize system drawings to isolate faults.

Prerequisites:

Ability to use meters, hand tools, etc., Basic electro-mechanical skills. The ability to read / interpret engineering drawings. Ability to lift approximately 50 pounds, 6 months experience of machine maintenance / operations, Ability to read / interpret engineering drawings

Course Duration:

	<u>Length</u>	<u>Start</u>	<u>End</u>
Aquastorm/AquaJet	4.0 Days	Monday 9:00 a.m.	Thursday 5:00 p.m.

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the courses’ end time.

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- Derive performance objectives from analysis
- Establish course content from performance objectives
- Identify prerequisite skills
- Maximize hands-on practice
- Develop skill tests to measure competency
- Repeat practice and skill tests until mastery of each objective is achieved per course objectives