



INTRODUCTION

Thank you for purchasing your Vectra ES Wave Soldering system.

This document contains information to answer all the frequently asked questions in relation to the installation of a Vectra ES Wave Soldering system.

Section 1 – Important Installation Requirements

Section 2 – Machine Foot Print

Section 3 – Training

If you have any further questions, please don't hesitate to contact the ELECTROVERT Customer Support Group @ 800-737-8110 or etsc@itweae.com.

Thank you for your cooperation, may I take the opportunity of wishing you many years of quality production with your new Vectra ES Wave Soldering system.

Sincerely,

Pat O'Brien
Vice President/General Manager

Vectra ES™

PRE-INSTALLATION INSTRUCTION



Customer Service and Support

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1. INSTALLATION PREPARATION

1.1 RECEIVING INSTRUCTIONS

Upon receipt, thoroughly inspect the system. If any damage or loss is detected, enter all details on the freight bill or receipt, and then have it signed by the carrier agent. Failure to follow this procedure may result in the carrier's refusal to honor the claim. The carrier is responsible to furnish the necessary forms for filing a claim.

When damage is not readily apparent until the equipment has been unpacked, file a claim for concealed damage. Make a written or telephone request to the carrier for inspection as soon as the damage is discovered. This type of claim must be completed within 48 hours of delivery.

Keep all cartons, packing materials and paperwork. The carrier will furnish an inspection report and the necessary forms for filing the concealed damage claim.

1.2 INSTALLATION PLANNING

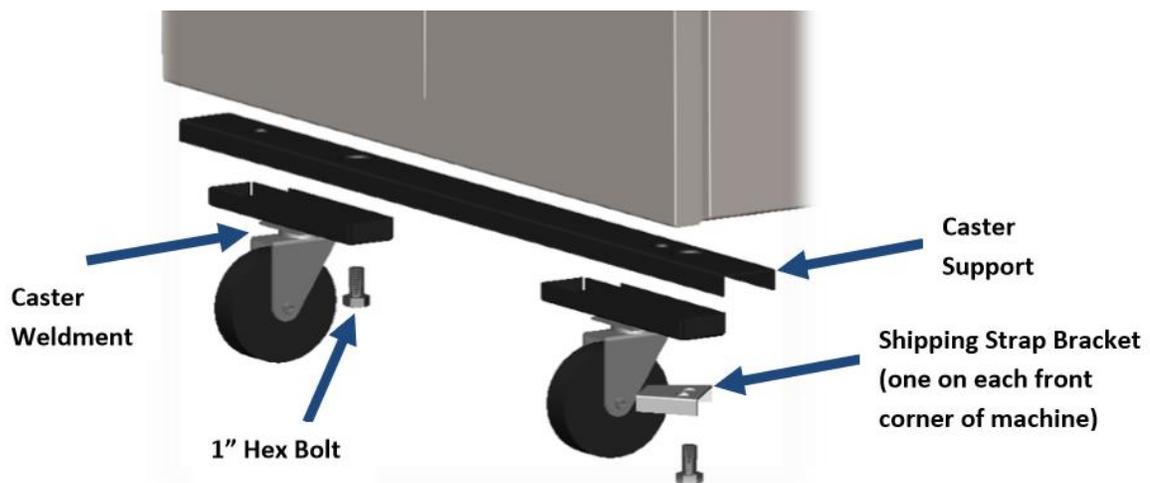
Allocate sufficient floor space for efficient operation and accessibility from all sides. Refer to the Engineering Data Sheet and Installation Drawing for machine footprint, weight, and facility connections and requirements.

Clearance behind the system is especially important since service operations are performed from the rear of the machine. It is recommended that 2 m (6 ft) of space is allocated at the rear of the machine for safe access around the solder pot when rolled out.

Install the system on a solid (anti-vibration), level floor capable of supporting the machine's weight. Also keep in mind the flammability of the materials (i.e. fluxes and thinners) used during normal operation. Allow additional space for storage of process materials such as flux, thinner, and solder. The storage containers for these should be remote and protected to minimize the risk of fire outside the machine.

1.3 CASTER REMOVAL (DOMESTIC SHIPMENT)

If equipped, the machine is mounted on six (6) caster weldments. Bolts are installed in the existing leveling foot locations to secure the casters to the underside of the system frame



Refer to the following procedure to remove the casters from the machine.

1. Position pallet jacks at each end of the machine or carefully position a forklift, with the fork extensions at their widest setting, under the frame. Make sure that the forks make proper contact with the base beams to avoid damage to the wiring and metal panels underneath the machine.
2. Carefully raise the system high enough to remove the casters and bolts from the system frame. Refer to the Appendix section for the location of the center of gravity.
3. Use a 1 ½ in. socket with ratchet to remove the six (6) bolts from the machine frame.
4. Install the leveling legs by screwing them into the frame where the bolts were removed. The legs should extend approximately 125 mm (5 in.) from the base of the system frame. Ensure the consistency of this distance with each leg.
5. Carefully position the system into place for installation.
6. Slowly lower the system onto the leveling legs at the site of installation.
7. Place the six (6) caster weldments and two (2) shipping strap brackets in the empty shipping box provided with the machine and ship them back to the factory.

#2 SHIPPING BRACKETS

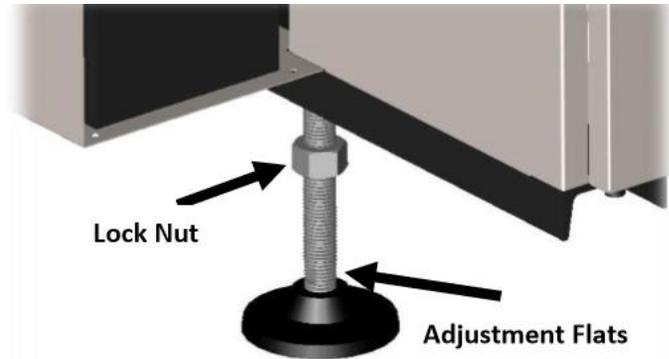
DO NOT REMOVE ANY SHIPPING BRACKETS. (MUST BE DONE BY FSE TO CHECK FOR DAMAGE)

1.4 COMPONENT CHECKLIST

Do not discard any boxes or packing material until an inspection is performed at the installation site. Use the following checklist to ensure that all components were received.

Component	X
Machine	
Tool Kit	
Leveling Legs	
Installation, Maintenance, & Software Manuals	
Bills of Materials (BOM)	
Mechanical Drawings	
Electrical Schematics	
Sales Drawing with facility requirements	
SMEMA Cable (if ordered)	
Spare parts (if ordered)	
ServoSpray™ or ServoJet™ Manual (if ordered)	
Flux/thinner tanks (if ordered)	
De-dross/maintenance tools	

1.5 LEVEL THE MACHINE



The machine is configured with leveling legs used for height adjustment and leveling. The leveling must be performed in both the front-to-rear direction and the load-to-unload direction. The machine should be set at a height such that access to regular maintenance and adjustment devices are located 0.4-2.0 m (1.3-6.6 ft) above the floor. Use the following procedure to correctly level the machine.

1. Place machine to be aligned with upstream and downstream equipment with a 10 mm (0.39 in) gap between adjoining conveyors.
2. Close the rear doors, front doors, and hoods before leveling.
3. Use a crescent wrench and adjust the center leveling legs so they do not touch the floor. The machine will be supported by only the four (4) leveling legs located at each corner of the machine.
4. Alternately adjust the corner leveling legs until the conveyor reaches the required height.
5. Place a spirit (bubble) level approximately in the center of the front load-to-unload main frame beam.

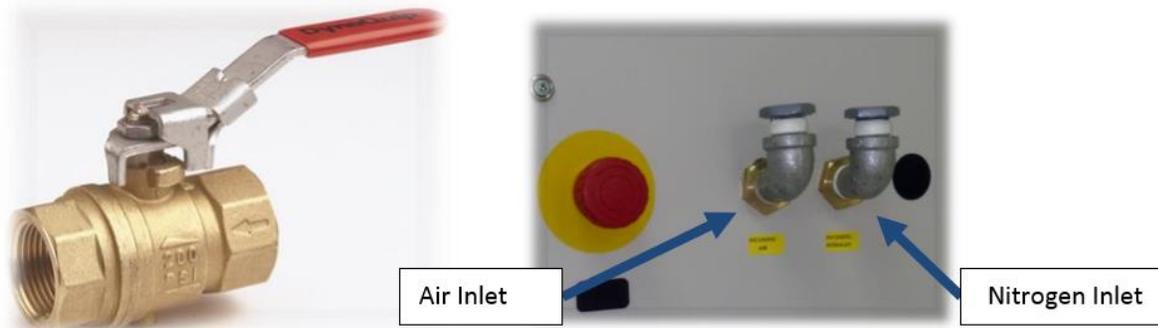


6. Adjust the front load and unload leveling legs until the level indicates proper positioning.
7. Place a spirit level across the load end main frame member.



8. Adjust the rear load leveling leg until the level indicates proper positioning.
9. Repeat steps 7 and 8 on the unload end of the machine.
10. Verify the load-to-unload position is still level.
11. Adjust the center leveling legs until they just contact the floor. Turn them an additional $\frac{1}{2}$ turn to support the weight of the center of the machine.
12. Visually inspect the load-to-unload main frame member to insure it is not “sagging” or “bowing”. (Correct such conditions by adjusting the center legs until frame is straight but making certain all legs are contacting the floor.)

1.6 FACILITY CONNECTIONS



AIR CONNECTION

½ in. FNPT inlet fitting. * 415 – 690 kPa (60 – 100 psi)

The machine requires a clean, dry compressed air (CDA) supply. The connection is made via a 1/2 in. NPT fitting on the load end panel. Please refer to the Engineering Data Sheet or Sales Drawing for supply line requirements. To provide for lock-out/tag-out safety protection of the pneumatic system, a lockable safety exhaust valve rated for a minimum of 1380 kPa (200 psi) must be installed to properly turn off the gas supply and vent residual gas. McMaster Carr part number 4628K83 is an example of a suitable component.

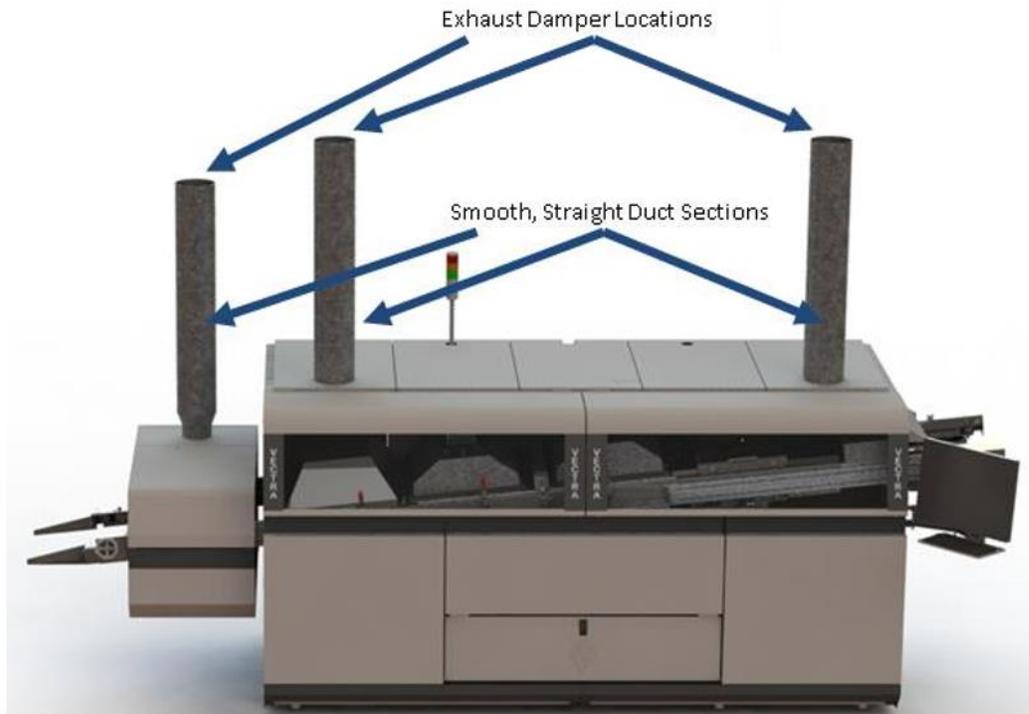
NITROGEN CONNECTION (if equipped)

The machine requires a filtered, contamination-free nitrogen supply if any of the following options are installed on the machine:

☑ Nitrogen Inert Soldering System ☑ ServoSpray™ or ServoJet™ Fluxer the connection is made via a 1/2 in. NPT fitting on the load end panel.

415 – 690 kPa (60 – 100 psi)

EXHAUST CONNECTIONS



The machine requires properly balanced exhaust for safe and efficient machine operation. The connection is made via two (2) 8 in. duct fittings for the machine and an additional 6 in. duct fitting if equipped with external fluxer cabinet. Please refer to the Engineering Data Sheet or Sales Drawing for proper requirements.

Recommended connection includes smooth, straight 8 in. diameter or larger sections of duct that are at least 6 times the duct diameter in length and a blast gate for each duct. Exhaust velocity pressure should be measured in the center of the straight section with a Pitot tube and manometer. This can then be converted to exhaust flow and balanced according to the EDS specifications. Note that dampers should be installed downstream of the smooth, straight section of ducting for proper balancing.

FSE will verify exhaust balance

Exhaust requirements--- Vectra ES

Load-end exhaust 1 765 m³/hr (450 SCFM)(minimum requirement)

Unload-end exhaust 1 1104 m³/hr (650 SCFM)(minimum requirement)

External fluxer exhaust 1 850 m³/hr (500 SCFM)(minimum requirement)

Water gauge pressure drop:

Load end: Allow for 30 mm (1.2 in.) water gauge pressure drop at the machine

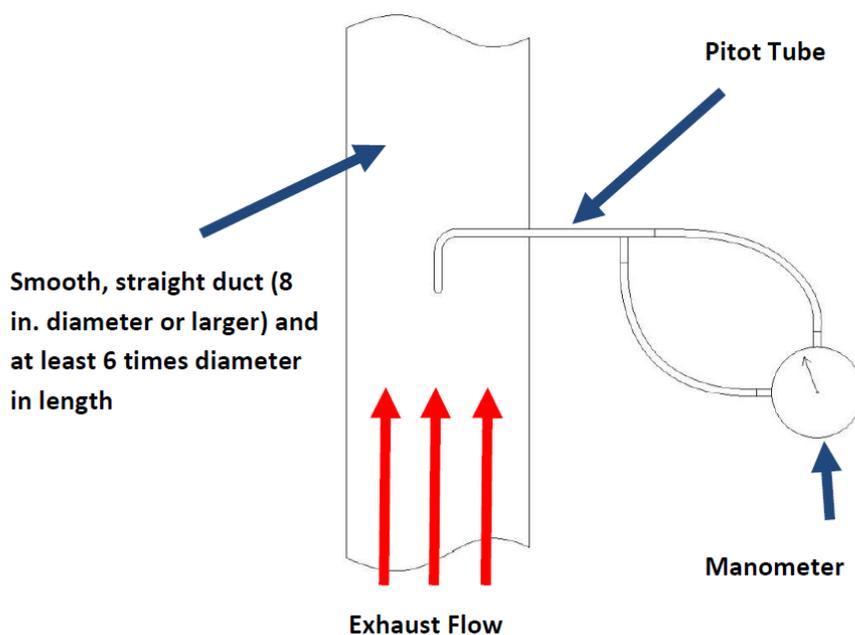
Unload end: Allow for 3 mm (0.1 in.) water gauge pressure drop at the machine

External fluxer: Allow for 30 mm (1.2 in.) water gauge pressure drop at the machine

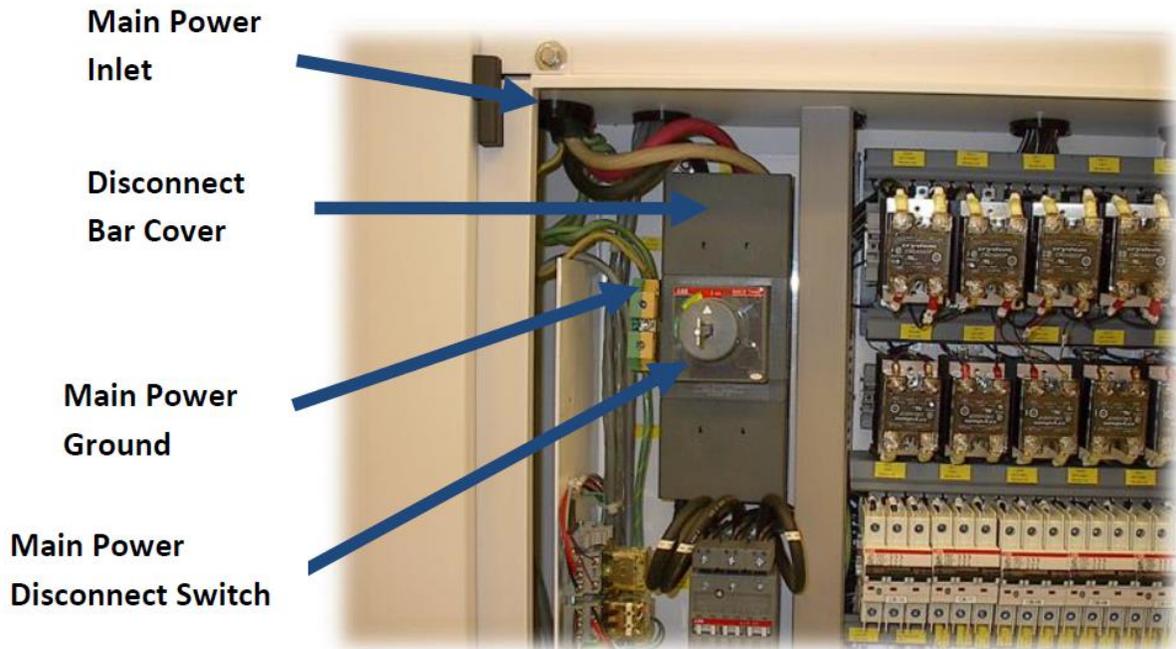
Exhaust port size:

Load and Unload ends: 203 mm (8.0 in.)

External fluxer: 152 mm (6.0 in.)



ELECTRICAL CONNECTIONS



1. Open the rear electrical cabinet door that contains the connection to the Main Power Disconnect Switch.
2. Locate the Main Power Disconnect Switch (SW-01) in the electrical cabinet.
3. Remove the cover that houses the Main Power Disconnect bar.
4. Locate the main power inlet at the top of the machine above the electrical cabinet.
5. Route the house supplied power cords through the house supplied conduit connector at the power inlet.
6. Connect the ground line to the yellow and green ground connector.
7. Connect the power lines to SW-01. Connect the lines so that they enter the hex lug connector from the back of the switch.
8. Verify electrical grounding (e.g. hi-pot tester) before applying power for the first time.
9. do not power up system (**FSE need to check all connections**)

MATERIAL NEEDED ON SITE FOR INSTALL

Solder to fill solder pot

Solder pot capacity: **Vectra ES**

Tin/Lead 63/37 Solder: Single wave 709 kg (1563 lbs.) Dual wave 692 kg (1526 lbs.)

Lead free solder: Single wave 615kg (1356 lbs.) Dual wave 612kg. (1350lbs.)

Fluxer fill with Flux, Solvent for fluxer and finger cleaner.

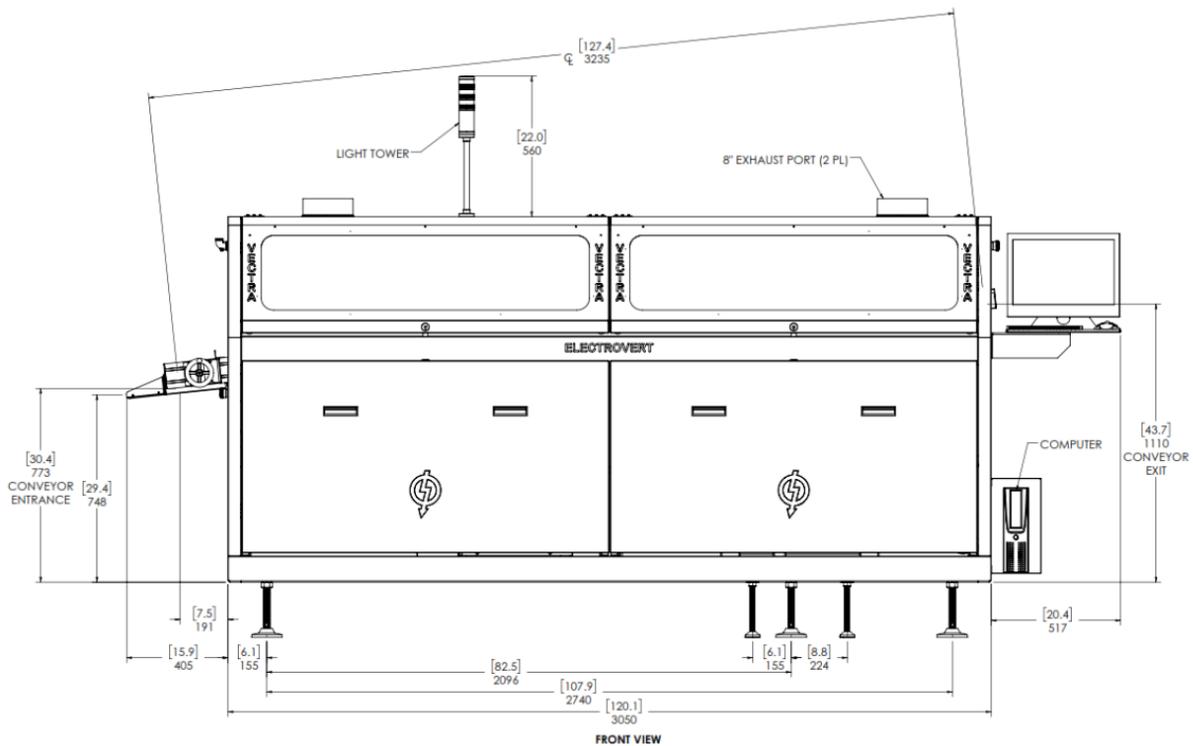
FSE will install computer and interface

Machine Foot Print

Machine Shipping Weight

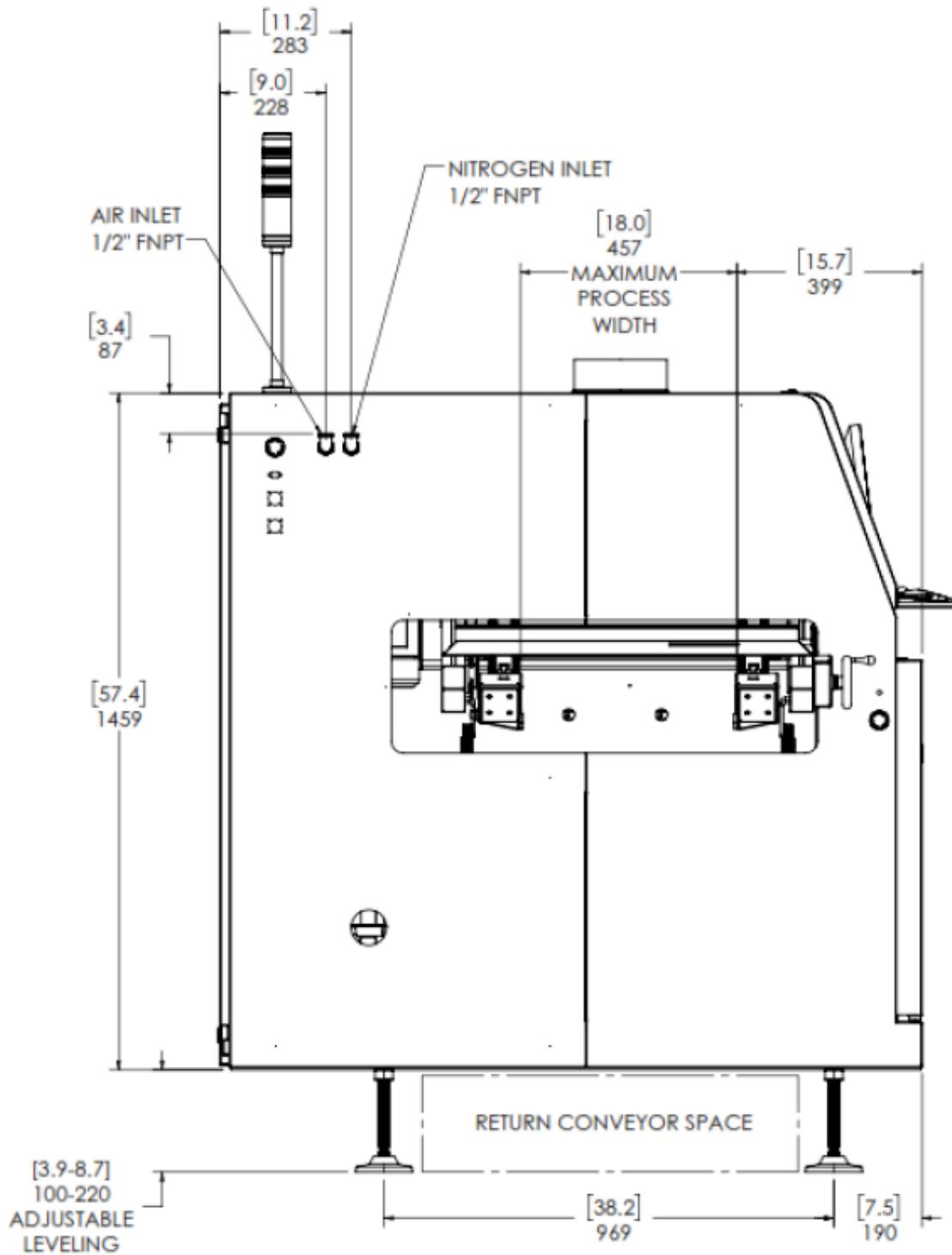
Shipped on casters: 2360 kg (5200 lbs.)

Crated: 2720 kg (6000 lbs.)



Electrovert

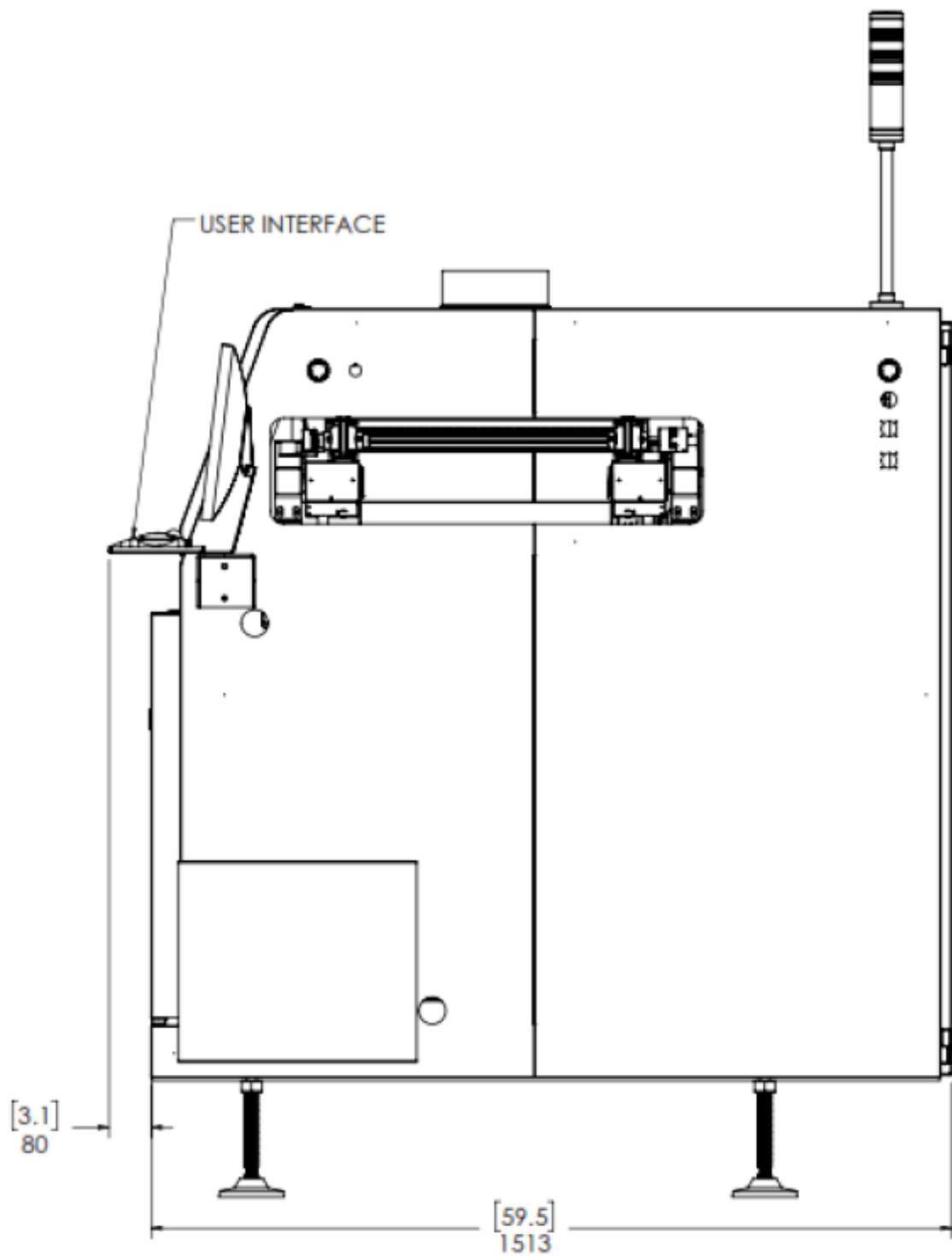
TW EAE Electronic Assembly Equipment



LOAD END VIEW

Electrovert

TW EAE *Electronic Assembly Equipment*



UNLOAD END VIEW



TRAINING AT INSTALLATION

As part of the Installation process, ITW EAE offers a complimentary “up and running” training program. This covers the basic operation, maintenance and programming of the Vectra ES Wave Soldering system and associated options.

Training Summary

Customer Start-Up Assistance Training

- The FSE (field service engineer) will provide maximum of 4 hours of training for up to four process engineers)
- The FSE will provide a maximum of two hours of training for up to four operators.
- The FSE will provide a maximum of two hours of training for up to four maintenance technicians.
- The FSE will then demonstrate that the system performs to specification using the customer’s production materials

***NOTE:** The customer’s personnel are expected to devote the entire time to the training program. Hours not devoted by the customer may not be “banked” for later use.

Additional Training

A full range of training courses are available covering operation, maintenance and process. Courses are conducted at our ITW EAE facility in Camdenton, MO.

For further information, including course descriptions and schedule please contact the Training Department or visit <http://www.itweae.com/services-and-support/americas>

NEED CONSUMABLES?

*For current pricing and availability please contact our Parts Department at usparts@itweae.com

*For any questions you may also contact us at 800-737-8110.