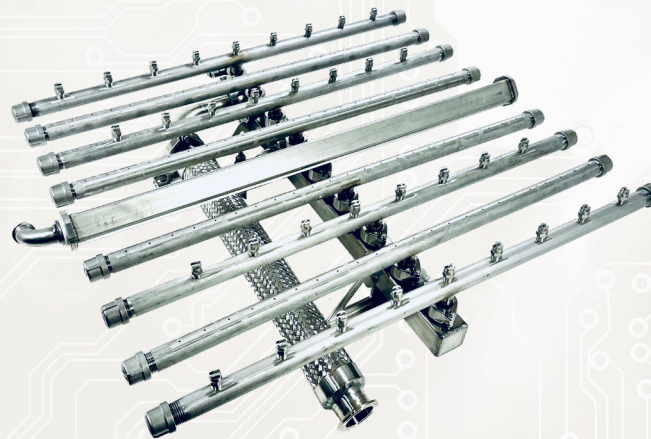


Matrix Manifold

**Increased wash and rinse performance
without increasing energy consumption**

As computing chips evolve to offer enhanced functionalities, packages like SiP, fcBGA, PoP, and 2.5D have become more intricate, incorporating larger die sizes, increased bump counts, and lower standoff heights. These advancements have posed challenges in achieving effective cleaning. The interconnects in these packages commonly use solder. Post-soldering, flux residues create significant cleaning hurdles, particularly beneath low-profile components. With standoff heights decreasing to less than 50 μ , outgassing during reflow diminishes, further complicating flux residue removal. Components such as QFNs and LGAs with large thermal pads add to these challenges, risking reliability issues including electrochemical migration and electrical leakage.



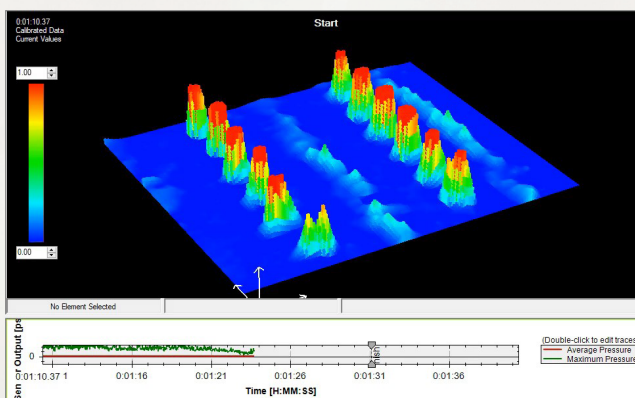
Lowering spray nozzles offers effective mechanical and thermal energy transfer

To fully optimize the cleaning process we need to minimize the atomization of particles while maintaining the velocity and coverage. By lowering the nozzles we limit the atomization of the spray in air system to efficiently transfer mechanical

and thermal energy to the product being cleaned. This intermix nozzle technology offers superior cleaning on the most challenging cleaning applications.

Value and Benefits of the Matrix Manifold:

- Increase cleaning performance by reducing atomization of spray patterns and increasing effectiveness of energy transfer.
- Increase repeatability of the alignment of spray patterns in wash and rinse sections.
- Manual or recipe controlled set-point in machine software and data captured for MES information management applications.
- Design of feature provides controlled height of manifold adjustment that is highly repeatable.
- Reduced chemistry consumption with proper alignment of nozzles and spray bars to product.



PPS Tactile	
DATA ANALYSIS	
Analyze:	All Sensors
Maximum Pressure:	2.92 psi
Minimum Pressure:	-2.57 psi
Average Pressure:	-0.01 psi
Total Force:	2.2 lbs
Contact Area:	47.62 sq.in
Centroid:	17.27, 1.28, 0.00 in.
Peak Location:	0.24, 5.75, 0.00 in.
EXPERIMENT DESCRIPTION	
Date:	2/14/2023, 3:24 PM
Title:	Spray Pressure_SN10021

Matrix Manifold - Auto and Manual Height Adjust

The Matrix manifold system is Electrovert's solution to complicated assembly cleaning with ease of maintenance and consistent repeatable performance. The system is compatible with all types of spray nozzles and increases performance without increasing energy consumption. Matrix manifold performs with flexibility and repeatability for manual levels of assembly many cleaning needs. The automated version can be recipe driven and support Industry 4.0 level of automation and MES information management applications.

The screenshot shows the 'Wash Module' control interface. It includes tabs for Troubleshooting, Calibration, PID, and Timer. The main area is divided into sections: Wash Tank Heater (with Heater Element, Wash Temperature, and Auto Fill On), Wash (with Spray On - Auto, Wash Pump Speed, Spray On with PCB, Upper/Lower/Hurricane Pressures, Chemistry Concentration, Auto Matrix Height, Conductivity Monitor, and pH Monitor), Pre-Wash (with Upper/Lower Pressures and Flow), and Recirculation Pump and Filter (with Recirculation Pump and Filter Pressure). Each parameter has a setpoint, actual value, and a 'Start' button. The 'Auto Matrix Height' is currently set to 4.0 inches.

Matrix Manifold Specifications	
Process Type	Compatible with DI water and most Aqueous based chemistry agents
Models	Aquastorm 200 Aquastorm 200 Dual Wash
Nozzle Types	Intermix - VJET, JIC, Hurricane™, DeltaJet™
Process Clearance	From standard 4" down to 2" clearance for both wash and rinse sections
Integrated Software Features (Auto Height option, not applicable for Manual Height option)	<ul style="list-style-type: none"> • Recipe controlled • Compatible with Auto-start and manual modes • Compatible with available MES protocols
Field Upgradeable	Manual height option only - check with factory for S/N verification

ITW EAE is a division of Illinois Tool Works, Inc. It is a consolidation of all of its Electronic Assembly Equipment and Thermal Processing Technology. The group includes world-class products from MPM, Camalot, Electrovert, Vitronics Soltec and Despatch.

© 2024 ITW all rights reserved. Matrix Manifold 12-2024

www.itweae.com

Electrovert

Cleaning & Soldering Solutions

ITW EAE