



# **Solutions Portfolio for the High-Tech Industry**

Assembly, Automation & Inspection Technologies

[www.smartsol.mx](http://www.smartsol.mx)

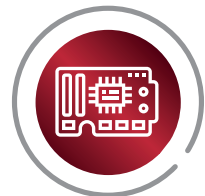


# SMarTsol TECHNOLOGIES

SMarTsol Technologies is a company founded in February 2012 in Guadalajara with the objective of offering products of value for our customers.

We are a supplier with the expertise in process analysis and consulting for the High-Tech Industry, including industrial, electronics, automotive, aerospace, metalworking, medical, telecommunications and commercial sectors.

We help our customers to optimize and automate their production processes; our services includes:



Capital Equipment Sales



Technical Support



Distribution



Integration for Automation



Process Analysis & Consultancy



Training

Our facilities in the most strategic locations in Mexico and United States allow us to improve delivery times and provide technical support and customized trainings for our customers:

### Demonstration and Distribution Center in Guadalajara, Jalisco

- 3 training rooms
- 1 demo room

### Demonstration Center in Ciudad Juarez, Chihuahua

- 1 training room
- 1 demo room

### Demonstration Center in Queretaro, Queretaro

- 3 training rooms
- 1 auditorium
- 1 demo room

### AZ Office in Mesa, Arizona

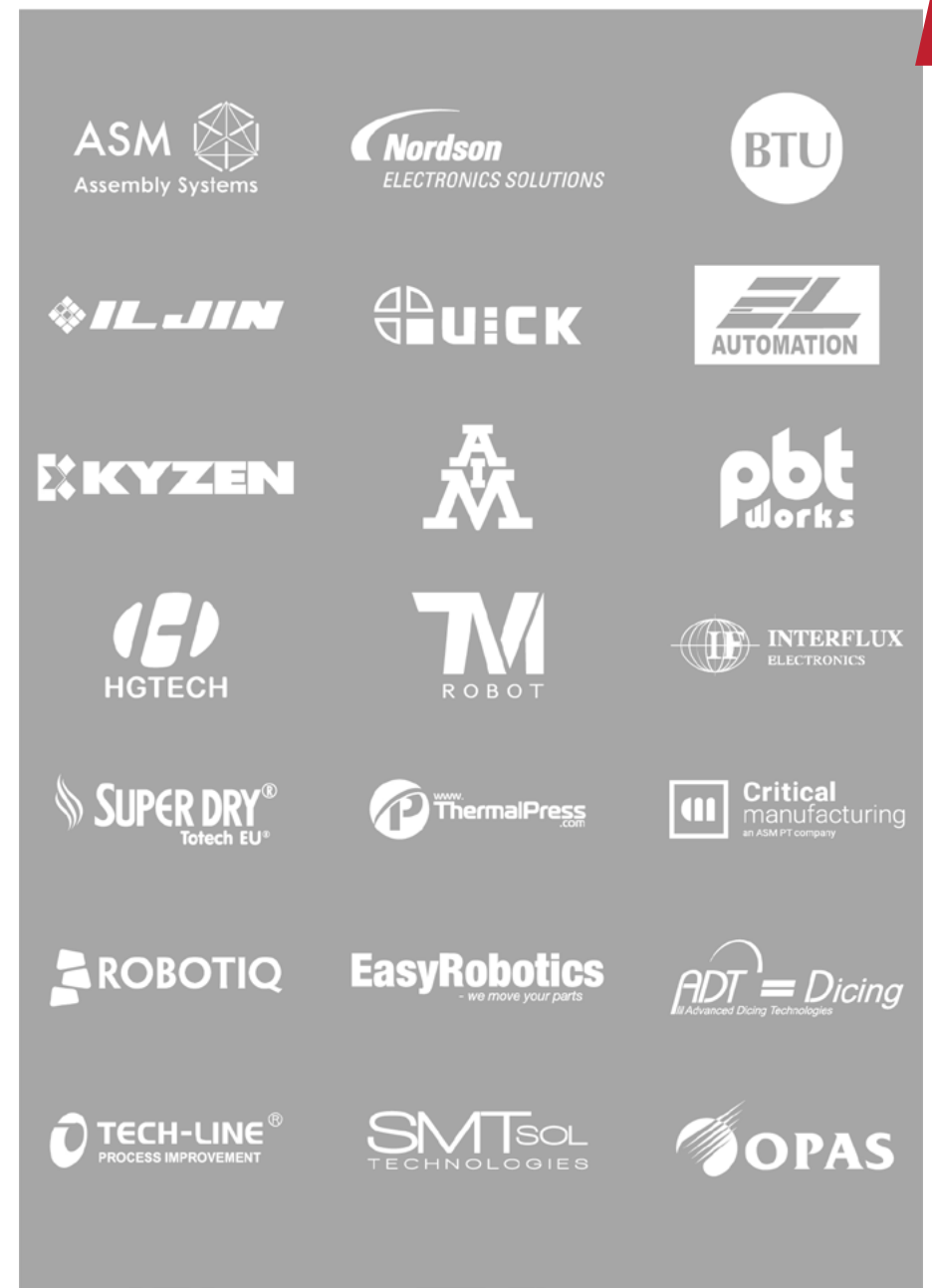
### Warehouse in El Paso, Texas

The personalized service that in conjunction with more than 20 years of experience, has made possible to gain customers and suppliers trust, exceeding their expectations.

Our portfolio includes only premium brands, also we provide all the technical support for our customers including spare parts distribution.

SMarTsol team will provide you global best practices of the industry at a local level.

SMarTsol Technologies, Innovation on High-Tech Industry.





## Screen Printers for SMT & Semiconductor Industry. Always The Right Solution For Your Production

Performance, Efficiency, Flexibility, Scalability – DEK printing platforms set standards. Global EMS companies, local OEMs, high-volume producers, quality-oriented contract manufacturers—ASM that put you ahead of the competition.

### DEK NeoHorizon

#### Modular and powerful

With their flexible configuration options, DEK Neo Horizon printers are easily adjustable to meet your specific requirements. Whether DEK NeoHorizon back-to-back, understencil cleaning, conveyors, paste roll height control, clamping systems or verification systems – mixing and matching options is quick and easy.

**The perfect machine for the smart factory.**



### SIPLACE TX

#### High-volume production with maximum precision in a tiny footprint

The smart factory needs smart machines: the SIPLACE TX is breaking all performance records with its new SIPLACE SpeedStar placement head and new SIPLACE SmartFeeder Xi.

The extremely compact and flexibly scalable modules of the SIPLACE TX set new standards in many areas:

- Maximum performance
- Maximum floorspace productivity,
- The world's first solution for the high-volume placement of super-small 0201(m) components.

### SIPLACE SX-Series

#### For highly flexible on-demand production

Our solution for EMS providers and OEMs who want maximum speed and flexibility. For quality-oriented SMT production in industries like automotive, telecommunication infrastructure, controls/automation and medical technology.

### SIPLACE X-Series

#### For demanding high-volume production

The latest generation of our ultimate high-performance platform. The global benchmark solution for high-volume production: mobile phones, tablets.



## Nordson SELECT. Selective Soldering Equipment and Solutions for PCB

Nordson SELECT understands both the need for high levels of throughput and the ability to adapt the selective soldering process to customer's ever changing requirements. As an example, our parallel or double processing modes enable fluxing and soldering of two printed circuit boards at the same time, effectively doubling throughput.

Nordson SELECT offers a full spectrum of selective soldering solutions, from compact and economical standalone models to multi-station in-line models with uncompromising high performance.

### **Novo series**

Selective Soldering with Compact Footprint and Outstanding Value.

### **Cerno**

Selective Soldering System for Large Board and Backplane Soldering.

### **Integra**

Concurrent Fluxing and Preheating for Increased Throughput.



## Nordson YESTECH. AOI – SPI – Conformal Coat Inspection

Nordson YESTECH is your 1-stop resource for automated optical and electronics inspection systems and equipment (AOI). We offer a comprehensive and versatile line of AOI. Our unique technology, combined with our focus on customer service and satisfaction, makes the Nordson YESTECH line of automated optical inspection systems the best value available today.

### **FX-940 AOI**

The FX-940 inspects solder joints and verifies correct part assembly enabling users to improve quality and increase through put. Configurable for all line positions, the FX-940 is equally effective for paste, pre / post-reflow and final assembly inspection.

### **FX 940 ultra 3D AOI**

Nordson YESTECH's advanced 3D imaging technology offers high-speed PCB inspection with exceptional defect coverage.



### **FX -942 AOI**

The FX-942 is highly effective for selective solder, post-wave, THT component and connector inspections. Off-line programming maximizes machine utilization and real-time SPC monitoring provides a valuable yield enhancement solution.

### **UV configuration available for FX-940 and FX-942**

Conformal coatings used by electronic manufacturers contain UV indicators for the purpose of Inspection. Since coatings are transparent, units must be viewed under black light in order to verify coverage and non-coverage.





**Nordson**  
ELECTRONICS SOLUTIONS

## Nordson MATRIX. A dedicated high speed automatic X-ray inspection system

The modular AXI system concept provides the unique capability to use several inspection technologies in one system. Depending on the specific application request, the optimum inspection technique can be selected and/or combined.

### 2D – Transmission

- High-speed inspection technique with up-to 5-6 images/sec. and with best high-resolution capability (II,FPD)
- Transmission is two-dimensional image capturing with a fixed detector position, Movable sample tray and movable X-ray tube (z axis) for different magnifications.

### Slice Filter Technique (SFT)

Matrix patented inspection technique to separate Top and Bottom side for double-sided PCB-assembly applications. High-speed technique using first side image to filter out from double-side image.

### Off-Axis Technology - 2.5D - Oblique View

AXI on programmable angle-shots used for high performance BGA and PTH inspection.

### 3D – SART

3D-Tomosynthesis to generate multiple horizontal slices used for highdense double-sided and multi-chip-modules (MCM,LGA,...)

**X2** Transmission (2D) + SFTTM

**X2.5** Transmission (2D) + SFTTM + Off-Axis (2.5D)

**X3** Transmission (2D) + SFTTM + Off-Axis (2.5D) + 3D SART



**Nordson**  
ELECTRONICS SOLUTIONS

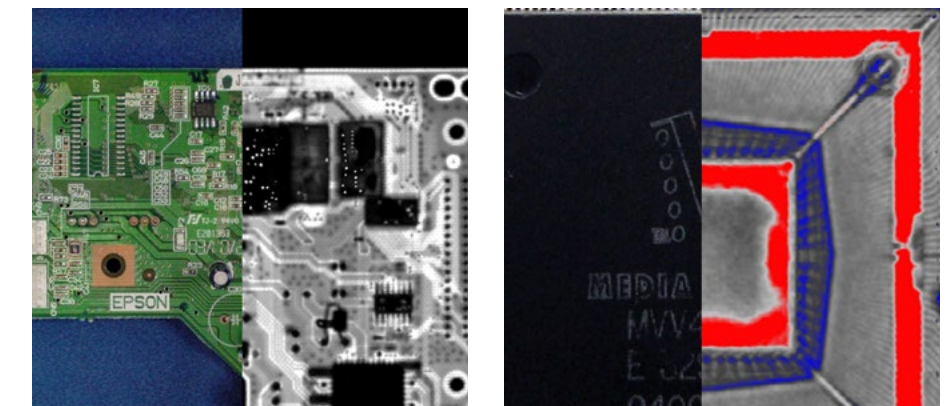
## Nordson SONOSCAN. Discover Defects First

Sonoscan is the most experienced source in Acoustic Microscopy for non-destructive internal inspection and analysis.



Sonoscan's C-SAM acoustic microscopes are recognized as the benchmark for accuracy, and through our SonoLab® division, you'll benefit from the unmatched expertise of our dedicated acoustic applications engineers. Our engineers represent the leading minds in AMI and regularly receive industry recognition and awards.

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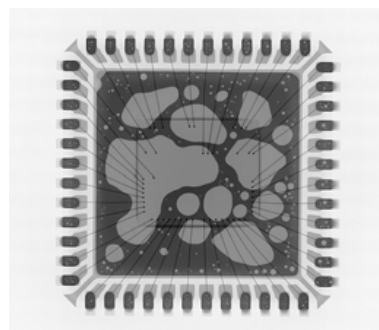
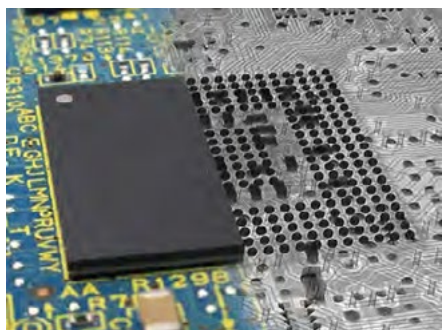


## Nordson DAGE. The leaders in X-ray inspection for the electronics industry

Nordson DAGE offers the highest feature recognition and resolution X-ray systems not only within failure analysis laboratories but also within the production environment.

### X-Plane System Option

X-Plane technology provides high resolution, high magnification CT functionality anywhere on the board - without cutting the board.



2 μm		<b>EXPLORER one</b>	90 kV 10W Compact
0.95 μm		<b>QUADRA 3</b>	160 kV 10W Heated stage X-PLANE
0.35 μm		<b>QUADRA 5</b>	160 kV 20W Heated stage X-PLANE QUADRAμCT
0.10 μm		<b>QUADRA 7</b>	160 kV 20W Heated stage X-PLANE QUADRAμCT <b>4K UHD</b>



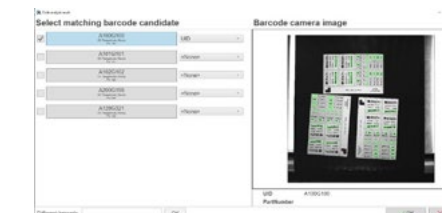
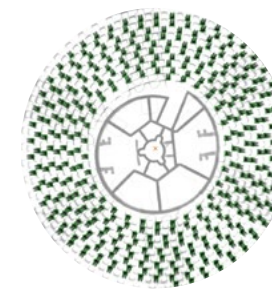
## Nordson DAGE Assure. Intelligent, simple and fast component counters



The new Dage Assure (formerly Optical Control) helps to keep exact parts count in production and storage areas.

### Nordson Dage Assure, parts counting system

- Drastically reduce counting labor
- Eliminate counting mistakes
- More up-time production lines
- Make better use of man power
- Communicate with ERP and MES systems.





## Nordson DAGE. Bond Testing. Find Every Failure



**Series 4000.** Fast set-up, easy to learn, maximum comfort.

- Simple PCBAs and components
- Ergonomic and easy-to-use
- High precision



**4000Plus.** Superior accuracy for complex samples and advanced test types.

- Complex and high density components
- High accuracy and flexibility
- Very high precision



**Automated 4600.** Maximum repeatability for the most demanding applications.

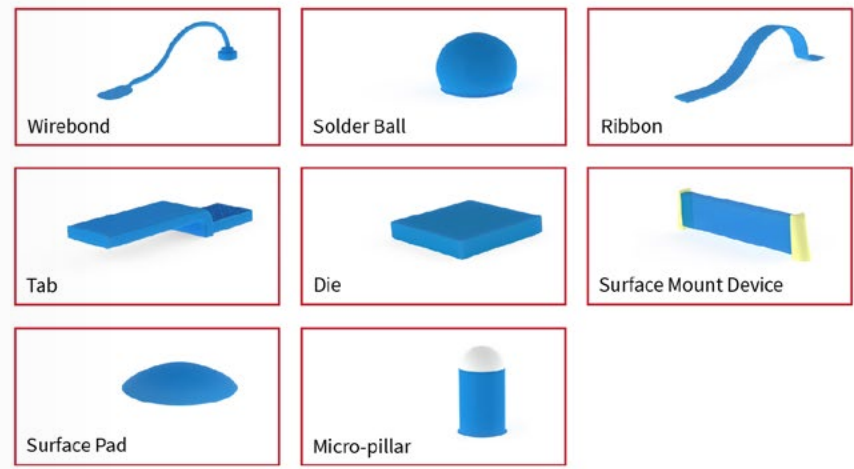
- Highest complexity products
- Maximum repeatability and accountability
- Ultimate precision



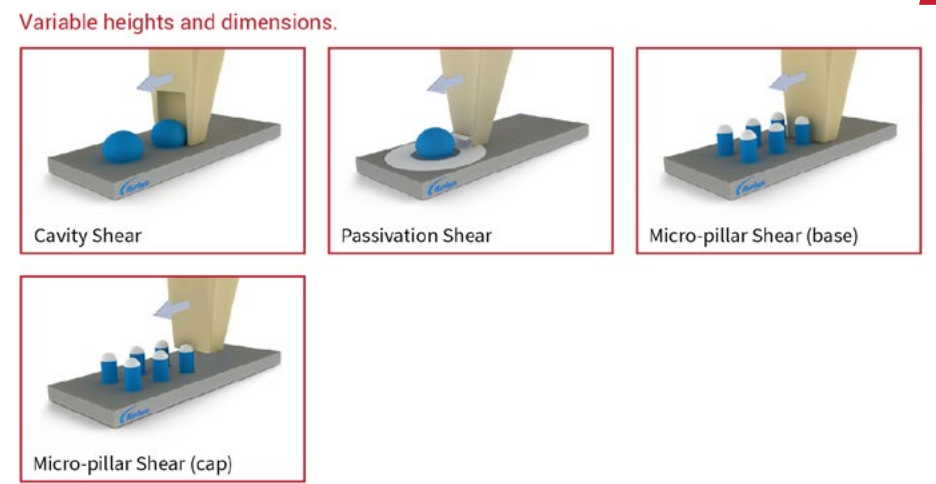
**Prospector.** Bend, fatigue, creep testing and more with the advanced micro-materials tester.

- Entire PCBA
- Find complex and unique failure modes
- Unique test modes

### Test Components



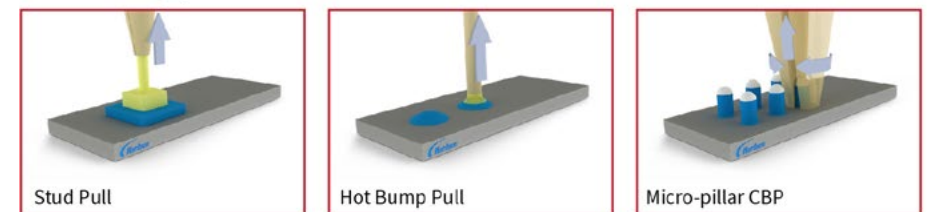
### Advanced Tests



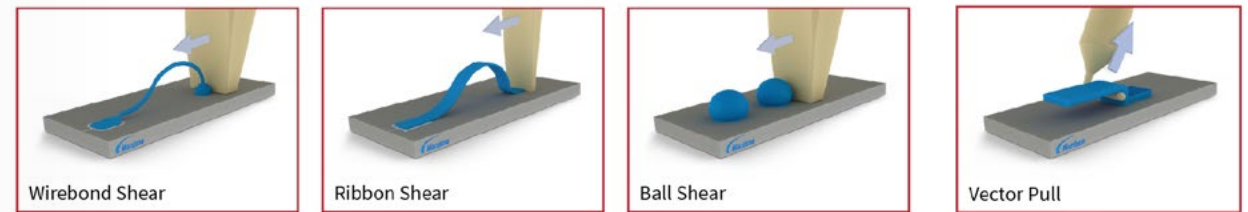
### Standard Pull Tests



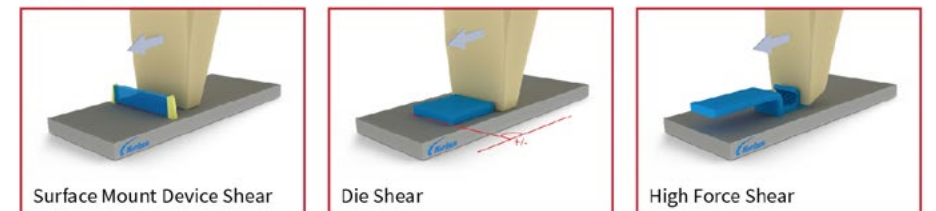
For difficult to grip or small dimensions.

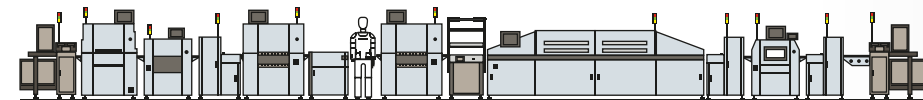


### Standard Shear Tests



Larger components and higher forces.





## Board handling & Automation

- SMEMA Interface.
- Auto and/or manual width adjustment.
- Touch screen and/or button type operation.
- Buzzer, SMEMA Interface LED Display.

- Compact Design.
- Durable Structure ESD cover (optional)
- Available in several sizes (width and length.)
- Customized automation equipment.

MAGAZINE TYPE	L	W	R	MAX. PCB SIZE		MIN. PCB SIZE	
				L	W	L	W
S(097)	355	320	570	330	250	50	50
Y(096)	460	400	575	440	330	50	65
L(093)	535	460	570	530	375	50	60
XL(100)	535	530	575	530	460	50	100
2XL(101)	620	530	575	610	460	50	100
SW(099)	620	320	575	600	236	50	60



## Laser Solutions for marking and cutting

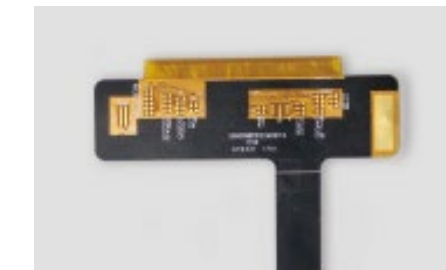


### Laser Cutting Machine and Laser Marking Machine

- PCB
- Flex Circuits
- Metals
- Plastics
- And other materials

### Type of Lasers:

- Fiber
- Co2
- Green
- UV







## The Power of Performance Reflow Ovens & Custom Furnaces

### Leader in In-Line Thermal Processing

BTU's reflow ovens feature closed loop convection giving them the industry's best uniformity and repeatability.



### The World's Best Performing Reflow Ovens.

BTU's Pyramax family of high-throughput convection reflow ovens is widely recognized as the global standard of excellence for both printed circuit board solder reflow and for semiconductor packaging. The Pyramax features BTU's exclusive closed loop convection control and process temperatures up to 400°C. For the most demanding applications Pyramax can provide O2 levels as low as 2ppm above source in the peak reflow zone.

### Pyramax Vacuum.

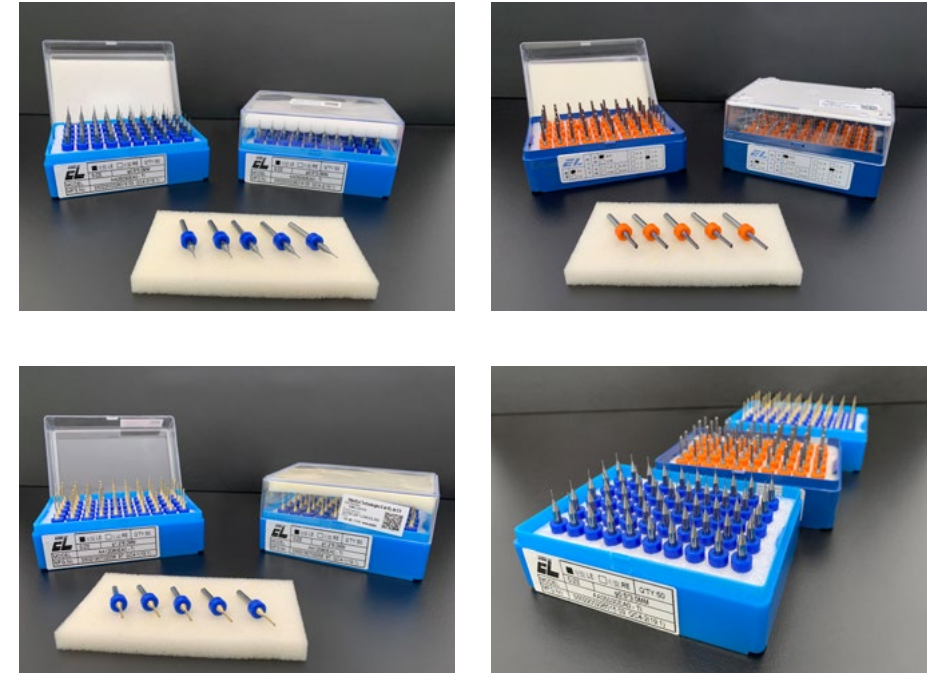
The Pyramax Vacuum reflow oven has been designed with the requirements of large EMS/high-volume automotive customers in mind. The unit is configured with 10 zones of closed-loop convection heating and a maximum production width of 457 x 457mm (18 x 18 inches) inches under vacuum operation. Nitrogen atmosphere capable, the Pyramax Vacuum reflow oven offers a maximum process temperature of 350° C.



## Leader on Routers Machines. Best in Class Speed and High Precision



Variety of Machine configurations and capacity to handle from small up to big boards.





Cleaning Calibrating System



Twin Rail



## Precision Assembly. Automation and Dispensing Robots

### Features:

- High speed: max jetting speed 500 points/S
- High precision: min dispensing amount 0.1nl
- Min dispensing dot: Dia 0.1 mm
- Min dispensing line width: 0.15 mm
- Closed loop weighing system offsets
- Inline design and iron casting structure
- Non-contact auto laser measuring height
- CCD auto vision system
- Auto nozzle cleaning



Piezoelectric Valve



Jet Valve



Auger Valve



Pneumatic Micro Injection

## Automation & Soldering Systems



Heating Controller



Pressure Sensor



Nitrogen Concentration Analyzer



Visual Inspection



Nitrogen Generator



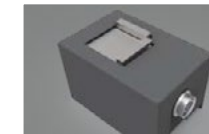
Wire Feeding Device



Displacement measurement sensor



Fume Extractor



Tip Position Corrective Device

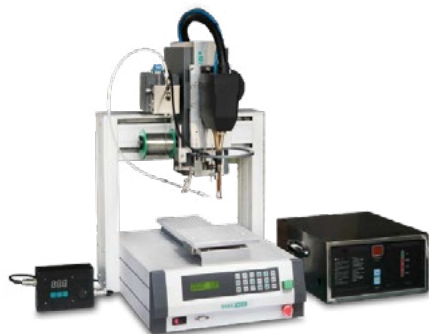


Tip Cleaner





# Automation, Hotbar, Screwing and Resistance Welding



Resistance Welding



**Hotbar Robot**  
Automaterial loading and unloading pressure and temperature of six soldering heads closed-loop controls individually



Hotbar Soldering Robot



Air-Blowing Type Screwing Robot



Hot Air Jeting Machine



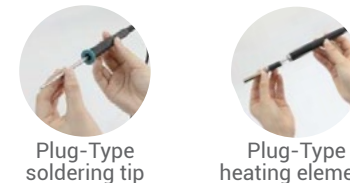
# Smart Soldering Critical Rework ESD Control Fume Exhaust



Hand identification and auto start-stop



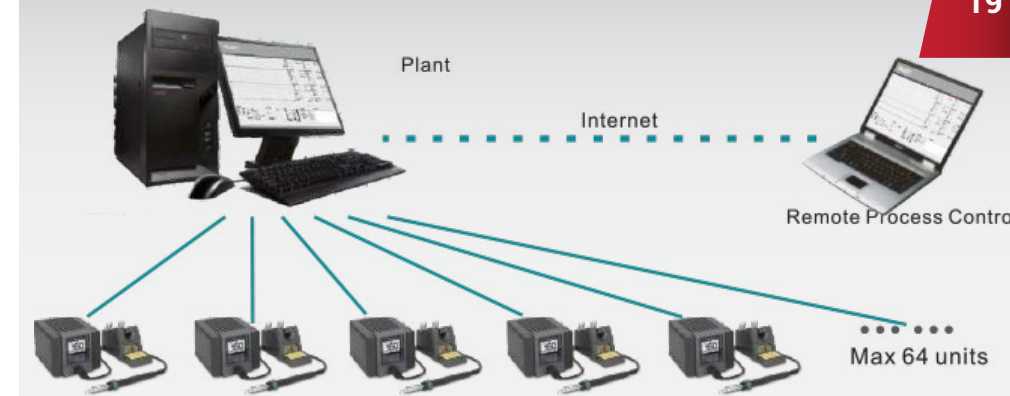
Ergonomic Soldering Iron



Plug-Type soldering tip      Plug-Type heating element



Fume Extractor



**Network management**  
Perfect combination of data trace and process control



Rework Station

- Soft Hot Air
- Balanced Heat
- Smart Power
- Constant Flow
- Zone Heating
- Auto Identification
- Touch Switch
- Pre-set Temperature
- Power-off Protection
- ESD 检测
- ESD Test
- Auto Sleeping
- Low Power Consumption
- Auto Shutdown
- Auto Shutdown
- °C/°F Interchangeable



## Worldwide Environmentally Responsible Cleaning Technologies

**Metalnox**  
 METALNOX products are Solvent and Aqueous precision cleaning metal finishing chemistries specifically formulated for removing tough soils and cleaning metal parts used in the Metal Finishing, Industrial and Tooling industries.

**Ionox**  
 Ionox products are semi-aqueous and solvent cleaning chemistries designed to remove tough soils from electronic assembly and advanced packaging products.

**Cybersolv**  
 Cybersolv products are specially formulated for superior performance in benchtop, stencil and maintenance cleaning. Whether for rework, oven cleaning or stencil cleaning Cybersolv will outperform anything in its class.

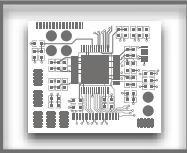
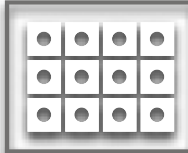
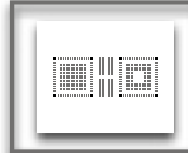

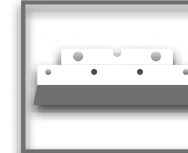
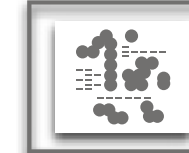

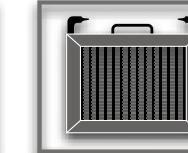
**Aquanox**  
 Aquanox line of chemistries are concentrated aqueous cleaning chemistries designed for the Electronic Assembly, Aerospace and Automotive industries. Each product in the line has been specially formulated for a variety of cleaning processes and purposes such as cleaning circuit boards and printed circuit board cleaning.

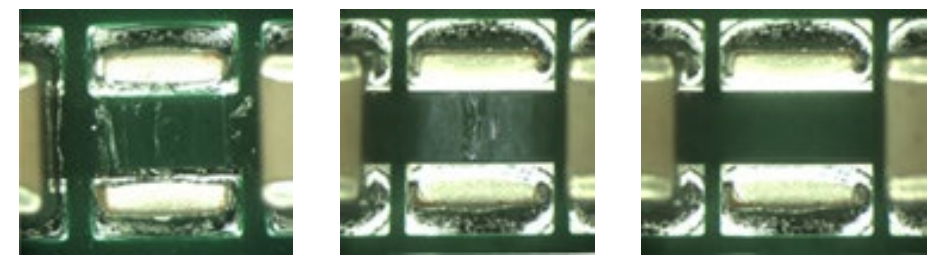


## Specialists in Cleaning Processes

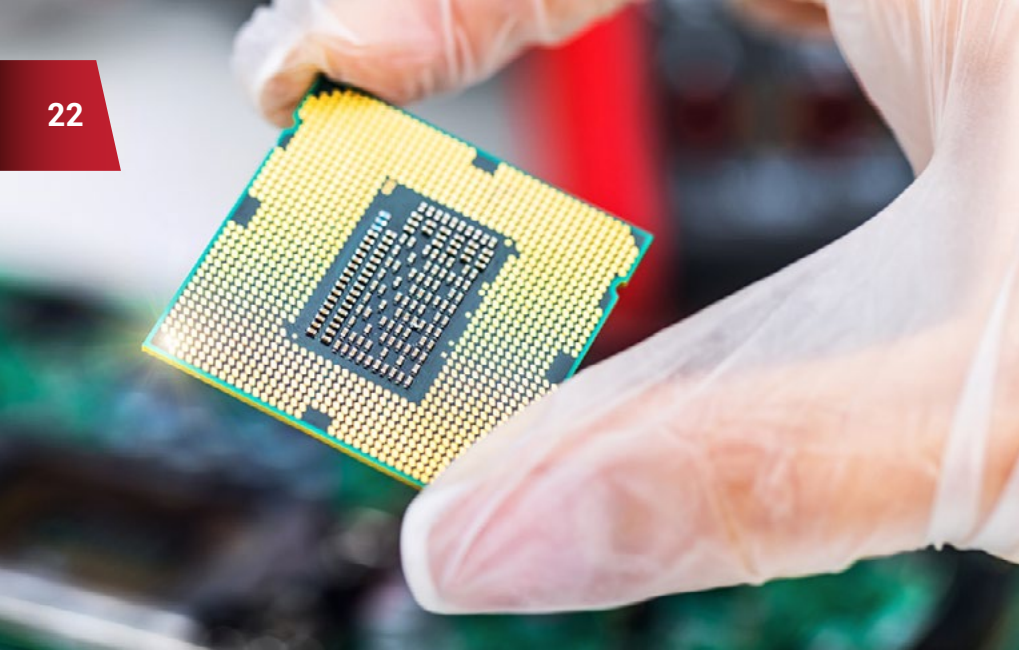


### Universal cleaning solutions for:

-   
PCBA
-   
DCBs
-   
STENCILS
-   
PALLETS
-   
SQUEEGEES
-   
PUMPPRINTS
-   
MECHANICAL
-   
FILTERS



Not Cleaned      Half Cleaned      Cleaned



## Leading global manufacturer of assembly materials for the electronics industry

**AIM's complete line of solder pastes** has been developed to deliver robust performance, ease of use and cost effectiveness. AIM halogen-free, lead-free solder pastes resolve difficult issues including QFN voiding, low area ratio printing, and high reliability requirements for LED, automotive, and military applications.

Available in no clean, water soluble, and RMA formulations for printing, dispensing, and jetting applications.

**AIM's Liquid Fluxes and Paste Fluxes** are available in a variety of formulations and packaging. The no clean, water soluble and rosin-based chemistries of AIM's fluxes offer a broad range of benefits proven to perform well in a variety of applications.

**AIM's Solid and Cored Wire Solders** are available in a variety of alloys, diameters, flux core percentages and spool sizes designed to suit all soldering applications. AIM cored wire

solders are produced in a proprietary method that guarantees a void-free flux core. Available in no clean, water soluble and rosin-based chemistries.

**AIM offers a broad range of alloys** for SMT, wave soldering, hand soldering, and various applications.

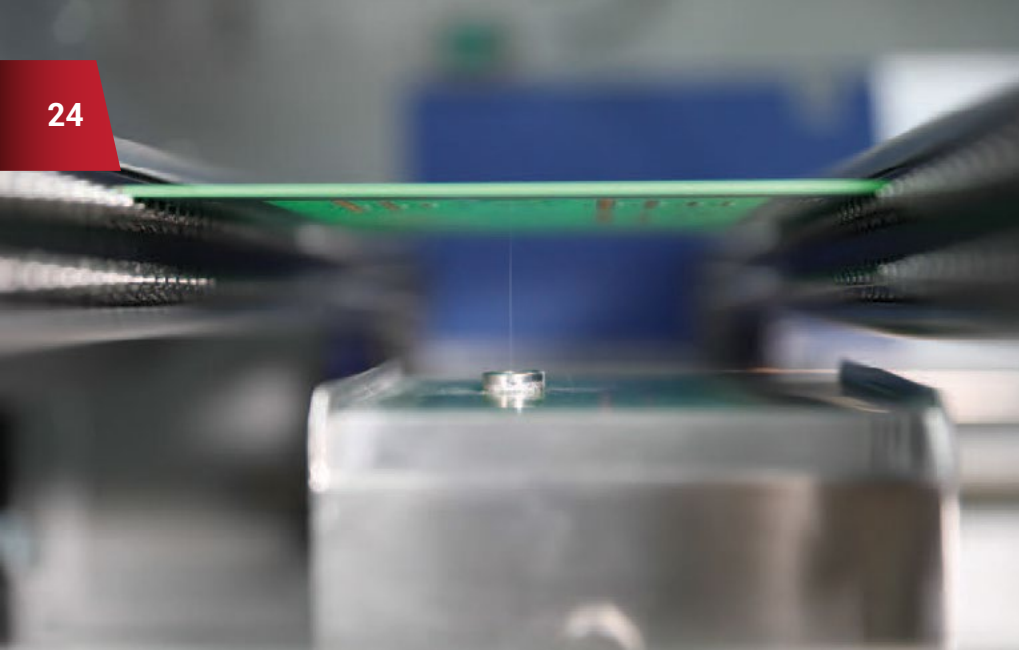


## High-Volume, High-Precision. Thermal Assembly Machines and Systems

### Heat Staking Applications

- Attaching Metal Grilles and Screens to Plastic Frames
- Automotive Panel Heat Staking
- Automotive Dash Mat Heat Staking
- Cell Phones Assembly Machines
- Heat Staking of Antennas in Hand held Devices
- Heat Staking Procedures and Processes
- Heatstake and Heatseal News and Information
- Heatstaking Process Information
- Manufacturing Using Plastic Heat
- Staking Processes.





## Wave Soldering & Selective Soldering

The ability to program points, lines, multi-lines, areas allows the engineer to decide how much flux/pressure is required for certain solder joints up to complete areas. This capability opens up the process window without risking excess of flux residues. Thanks to the XY-movement speed up to 1,500 mm/s, the cycle time will be up to the standard required for wave soldering mass production users.

### ICSF-SELECT

The ICSF-Select offers a Total Flux Process control needed for today's more demanding and complicated soldering requirements, especially lead-free processes.

- Environmental friendly
- Up to 95% less flux usage
- Less maintenance chemicals

- Longer life of PCB carriers/pallets
- Reduction in flux fumes
- Solderability Performance.

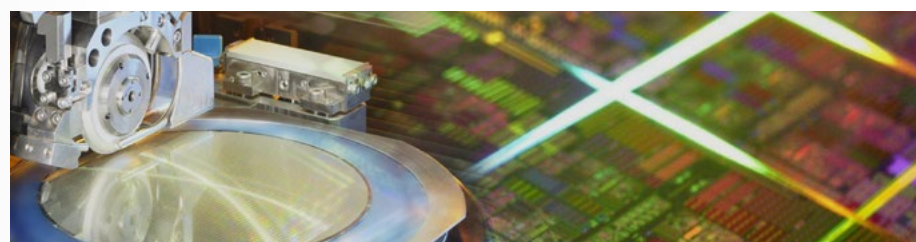
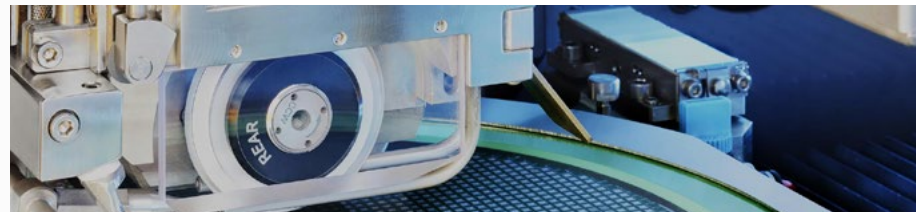


- For wave soldering
- For selective soldering
- For alcohol based fluxes
- For water based fluxes
- For rosin based fluxes



## Dicing Peripherals Leading products with World-Wide reputation

- Improve your process stability and accuracy
- Lower production cost and save energy
- Customized solutions for your specific needs
- Gain a long lasting partnership and commitment



**966 Wafer Mounter**  
For manual mounting of workpieces on tapes.



**967 Auto Wafer Mounter**  
For quality, hands-free mounting of workpieces on tapes.



**977 Wafer Cleaner**  
Designed for after-dicing workpiece cleaning and drying.



## Moisture Sensitive Device (MSD) Handling Specialist

### Super Dry storage solutions you can count on:

- Protect productivity and avoid costly defects
- Safeguard your MSDs in accordance with IPC/JEDEC J-Std-033C handling standards.

Constantly redefining the capability of humidity reduction technology for industries, including electronics.

**The SDB series of cabinets** have been designed as low cost entry-level storage cabinets. User-friendly operation and compact construction guarantee safe medium to long term storage with low humidity control of less than 5% RH.

**The SD series of dry cabinets** comprises a wide range of models. Advanced design with chrome steel standard shelves and reliable drying units, these cabinets offer maximum protection for medium to long term storage.

### SDB SERIES



**U-4001 series dryer:**  
Air drying to below 2% RH  
Regeneration: static (timer-controlled)



**Control:**  
No integrated control  
Display of climate data through hygrometer



**Sensor:**  
Standalone battery operated humidity measurement device, accuracy +/- 5% RH  
Offset configuration



**Convection:**  
Forced air circulation through integrated fan



**Performance:**  
30 min recovery time after door opening to below 5% RH



**Documentation:**  
External data logger optional

### SD SERIES



**U-2000 series dryer:**  
Air drying to below 2% RH  
Regeneration: static (timer-controlled)



**Control:**  
Humidity and temperature display with parameter value input; humidity and door monitoring functions



**Sensor:**  
Integrated sensor, accuracy +/- 3% RH  
Offset configuration



**Climate control:**  
Optional heating up to 40°C  
Forced air circulation through integrated fan



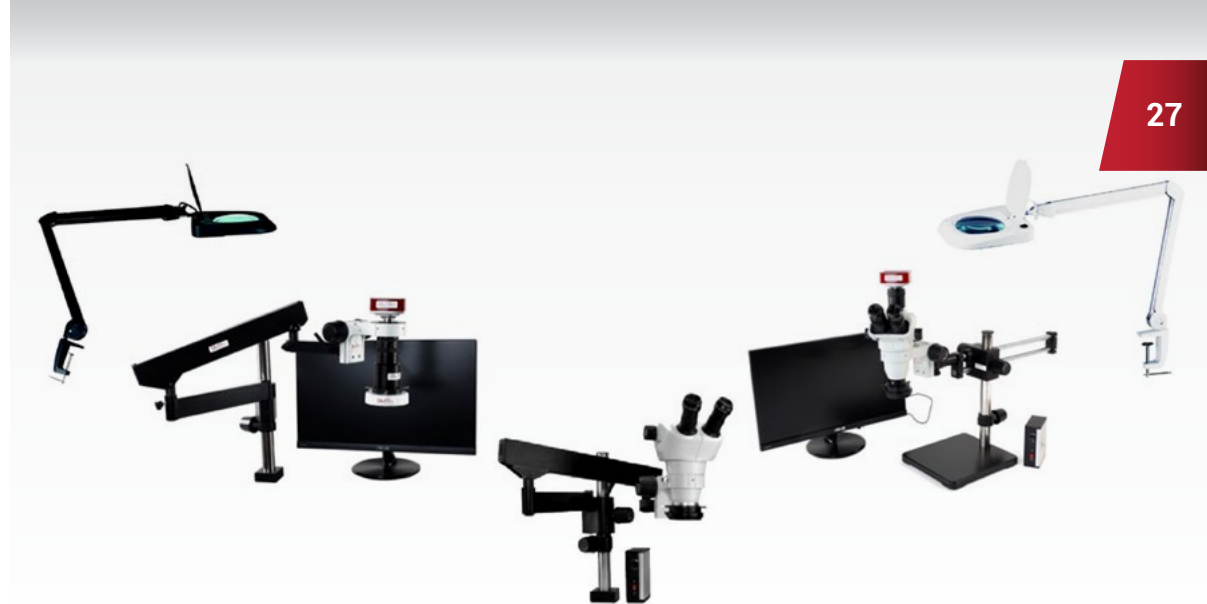
**Performance:**  
30 min recovery time after door opening to below 5% RH



**Documentation:**  
External data logger optional



## The best Optics Solutions suppliers



### S Series Stereo/ S-FLEX.LED. Best Selling Stereo Binocular Microscope!

The S Series been installed and tested on the field for more than 10 years.

### Featuring a Magnification Range from 6.7x up to 45x.

Systems come standard on a "Flex" Articulated arm with table clamp and Led Ring Light with intensity control. All are easily upgraded and reconfigurable through additional stands, available lighting, and interchangeable eyepieces and auxiliary lenses.

### N Series Stereo/ N-FLXP-PLZ.

The N Series Stereo Binocular Microscope is the best system for a standard inspection task features Mag Range from 7x up to 50x, the N is a standard in the medical industry, with a clear image and an ergonomic body and position, typically used on an articulated post stand with Led Ring Light or Fiber optics.

### S Series Trinoculars

The Best Selling Stereo Trinocular Microscope that has been installed and tested on the field for more than 10 years; with a Mag range from 6.7x up to 45x, now also as Thru focus with a HD camera to document all your work, and view these images live on a compact hd screen or on an a 24" HD LED monitor. Using accessories this system can go up to 300X on the video port.

### Macro zoom. Video System.

The #1 recommendation when our customers does not want to continue using a Microscope, but needs to do a general inspection. The Macro zoom series magnify up to 65X ( 130X with accs) with a HD camera to document all your work , and view these images live on a compact 10" hd screen or on 24" hd LED monitor.

With a working distance of 10"-Infinite, you can do anything.



## Stand-Alone Cobot Solution. Robot equipped with Build-in Vision System

TM Robot offer three series of cobot solutions – regular payload, medium-heavy payload, and mobile. These series represent various sizes and payload capacities to match specific tasks and requirements.

### Smart Built-in Vision System.

TM Robot is equipped with a built-in vision system, which integrates into both the hardware and software perfectly, comparing to the add-on vision for robotics that are more time consuming and costly to implement.

### Simple Painless Programming.

Manage the functions and programming of your TM Robots using the TMflowTM – an innovative, flow-based editing software that allows you to program with simple click-and-

drag motions. With TMflowTM, you can create your own cobot projects without any coding.

### Safe Force Limiting.

Ensure the safety of your workers and any human who gets too close to or interacts with the TM Robot. These cobots stop immediately when they collide with any object, preventing further injury to both human and machine.



## The Smartest Way to Automate a Process

Robotiq offers Plug + Play components for collaborative robots that are easy to use. Ideal for basic and advanced robotic applications.

### OPERATE

- High force, payload and precision
- Robust, factory-proven hardware.

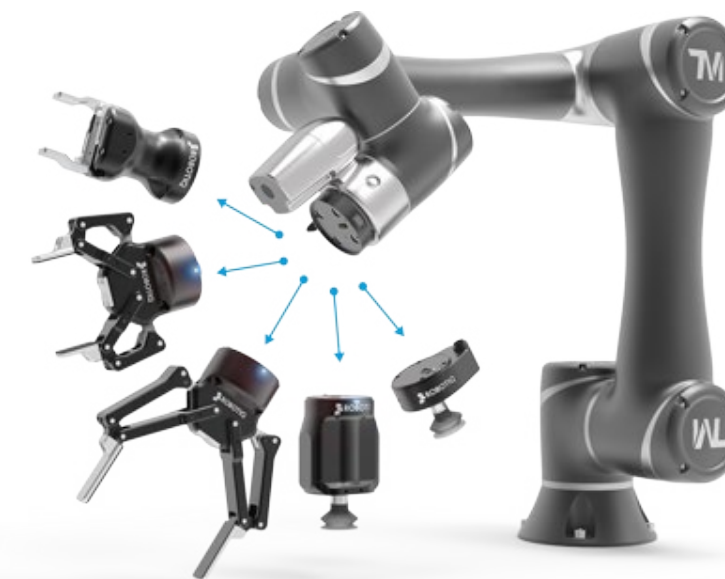
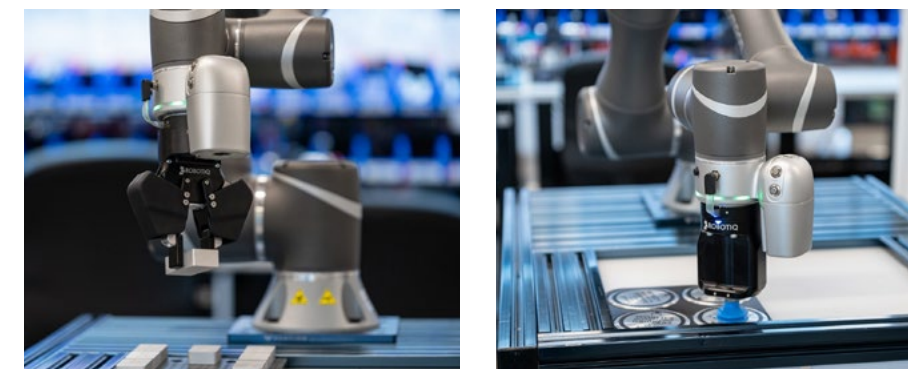


### DESIGN

- Plug and Play
- Wide range of components and applications
- Easy to customize.

### INTEGRATE

- Fast installation
- Easy programming
- Programmable stroke, speed, force.







**EasyRobotics**  
- we move your parts

## Automate your Material feeding with a robust and efficient solution



### ProFeeder Table

Makes it fast and flexible to get started with robot automation.



### ProFeeder Light

The ProFeeder Light robot cell consists of a basic module with 1 flexible manual removable parts tray designed for handling all types of parts.



### ProFeeder

Consists of 1 basic module, 2 movers with 2 flexible part trays. The part trays are automatically centred, and are designed to accommodate all part types.



### ProFeeder X

Higher production capacity. Large production – delivered with 2,5 or 10 trays options. Ideally to lower cycle time resulting in fast production.



## Critical Manufacturing MES V8 for Electronics Assembly

### The most complete, modular MES for Industry 4.0.

Electronics manufacturers must improve speed and lower cost to innovate and produce in small lots. This is a major change for processes, people and systems.

#### Connectivity

- Connect to IoT-enabled products and equipment
- Manage and control untethered devices
- Secure physical and digital assets

#### Mobile

- Work anywhere with complete access to operational data
- Leverage location data effectively
- Use augmented reality for assets and products

#### Cloud

- Leverage hosted infrastructure
- Use up-to-date versions at all times



- Focus on strategy, not IT management

#### Advanced Analysis

- See real-time plant performance metrics
- Prevent problems with predictive and prescriptive analytics
- Feed contextualized data to enterprise big data

#### Decentralization

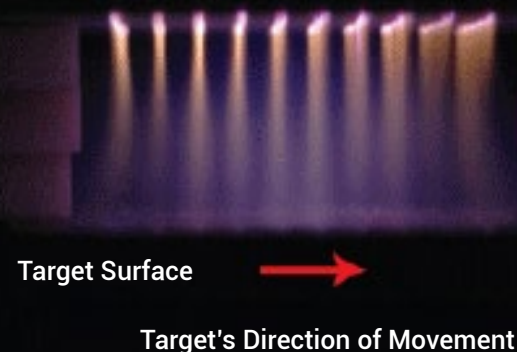
- Manage complex distributed plant floor processing from a unified system
- Record events in context for complete, accurate genealogy

#### Vertical Integration

- Use dynamic, rule-based workflow engine
- Integrate seamlessly with equipment, IoT and automation
- Flow information to and from enterprise systems

#### Horizontal Integration

- Integrate seamlessly between plants
- Collaborate dynamically with suppliers
- Share efficiently and securely with customers.

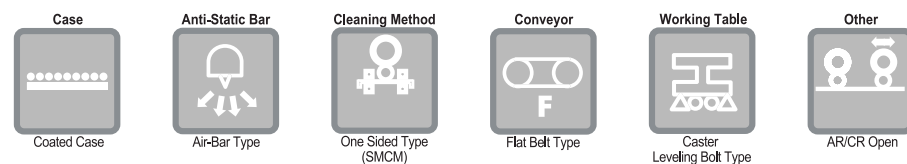


## Innovative Solution in the world of PCB Cleaning for removal of ESD & Particles

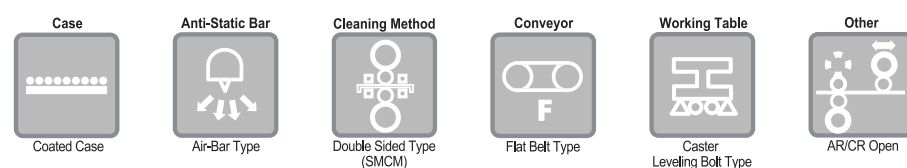
Dusts and particles on the object are contaminated by static-electricity. Before cleaning the object, cleaning machine separates particles from the object electrically through anti-static bar, and then specialized high polymer cleaning roller removes dusts and particles.

Adhesive roll removes contaminants on the surface of cleaning roller in real-time.

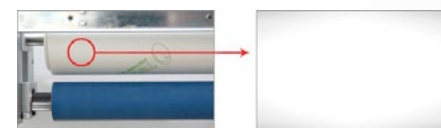
### One-Sided SMCM. Model: FC-M810-400



### Double-Sided SMCM. Model: FC-M820-400



### Performance



## UV Curing Equipment



### XLite 500

OPAS XLite 500 UV chamber is designed for curing UV adhesive, UV ink or UV lacquer. The well cooling design decrease the temperature if inside chamber. XLite 500 is very convenient for using on experiment or small scale production.

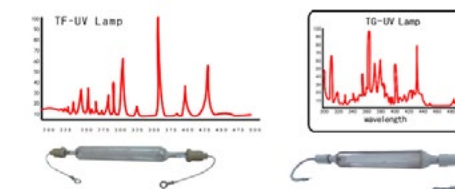
- Compact UV chamber
- Timer set/alarm
- Well cooling design
- Two type lamps changeable
- Lamp life time record



### XLite 600 UV Chamber

Equips an electronic control shutter which blocks the UV light when the curing time is up. It is designed for the curing of UV resin cured in few seconds. You can change the position of the product by adjusting the plate inside the chamber.

OPAS offer two type of UV lamps: TF lamp is a mercury lamp which has the main wavelength on 365nm and 254nm. TG lamp is a metal halide lamp which has the main wavelength on 365nm and visible light area.



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