

ADVANCED ASSEMBLY  
TECHNOLOGY

**DOU YEE**  
ENTERPRISES

# DOU YEE ENTERPRISES

The premier total industrial solutions provider in the Asia Pacific region, serving with distinction in the semiconductor, data storage, electronics and biomedical industry since 1982.

We have 45 international branch offices strategically located around the world to give customers the fastest and most accessible products and services.

Our manufacturing plants, located in Singapore, Malaysia (Seremban), China (Suzhou), France and Poland are governed by consistent quality systems with ISO 9001:2015 and ISO 14001:2015 certifications.

You can rely on us for products and services that are comprehensive in range, reliable in quality, accessible in location, and backed up by our many years of experience and expertise.

Dou Yee, your preferred partner in the industrial world.



	MY700 Jet Printer • SMD Tower • MY300 Series	04-05
	PI Series • K3D Series • Sigma Link	06-07
	SMT Vacuum Reflow Oven • Vertical (Oven) Temperature System • Cube-Temperature Treatment System	08-09
	Laser Marking Cell	10
	Automatic Loader/Unloader • Mini High Speed Loader/Unloader	10
	THT Line • OPTICON X-LINE 3D, AXI.AOXI • Pilot Inspect	11
	Fineplacer FEMTO 2 • Fineplacer SIGMA • Fineplacer CORE	12
	MiniOven 04 • Expert 10.6 HV	13
	SuperSWASH • MiniSWASH • CompaCLEAN • UniCLEAN	14-15
	Cleaning Applications in the Electronics Assembly Process	16
	Adhesive System Engineering Consulting	17
	MAX Series • MICROCELL • DS Series • PCD Valve • Precision Auger • NCM5000 Valve • FPC	18-21
	Image Master 350pc Smart • XCROSS Master Sx Series • Super-SIGMA CM3 • Dispensing Accessories • SuperJet • AeroJet	22-25
	UV LED Type • UV Light Source Type • UV Meter • UV Light Technology • Adhesion/Bond Cure • Seal / Coat	26-27
	X-Sintering • X-SAM	28
	LBR iiwa • KUKA Mobile Robot - KMR	29
	Volumetric Dosing Systems	30
	Peel Back Force Tester	31
	Back Grinding Tape • Wafer/Package Dicing Tape	32

Underfill Process

**GPD Global**

Spray Coating

**MYCRON**

SMD Tower Storage

**MYCRONIC**

AGV, Collaborative Robot

**KUKA**

Stencil Cleaning

PCB Cleaning, Defluxing

**pbt**

Cleaning Solution

**ZESTRON**

Laser Marker

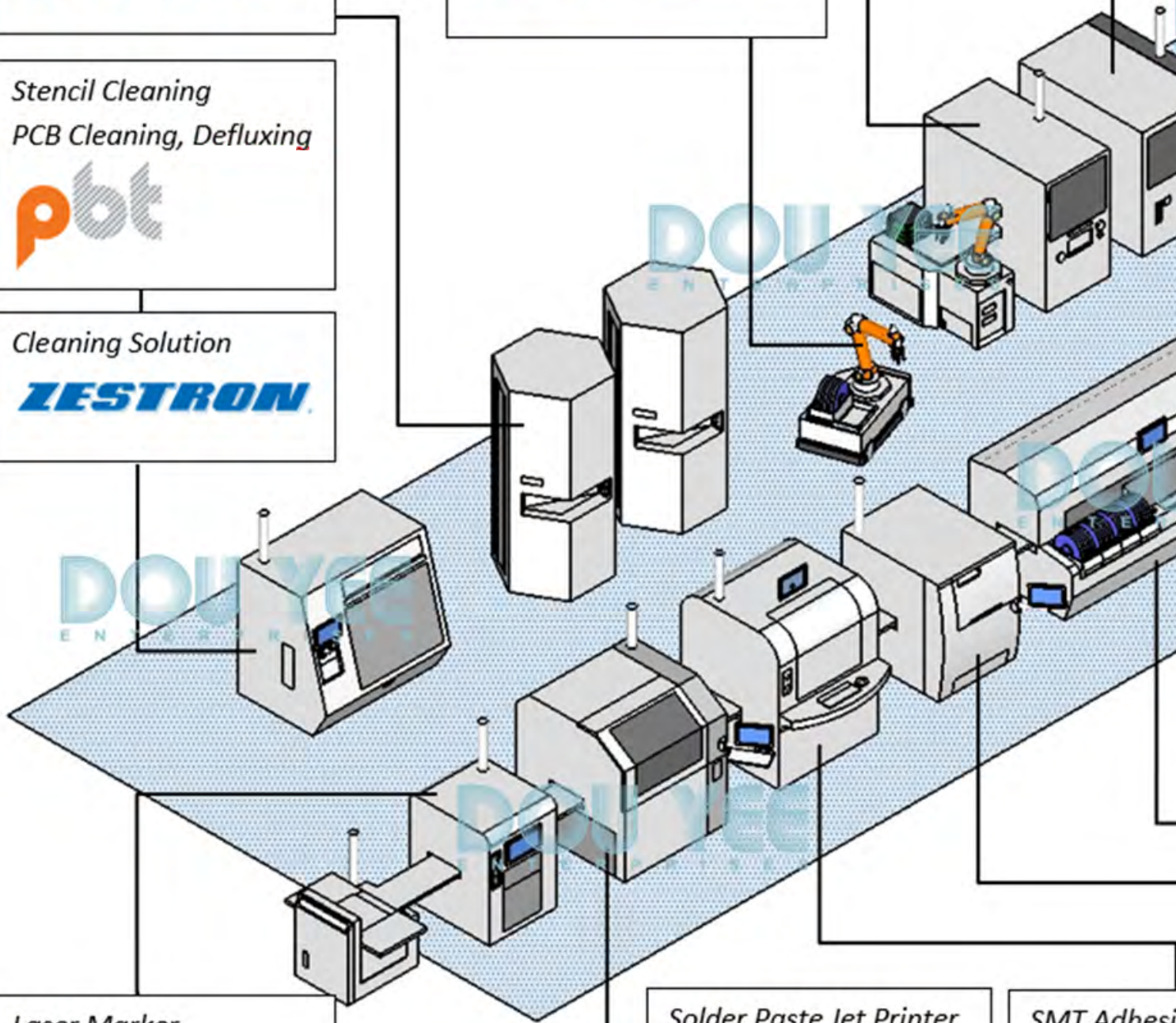
**LASIT**

Solder Paste Jet Printer

**MYCRONIC**

SMT Adhesive

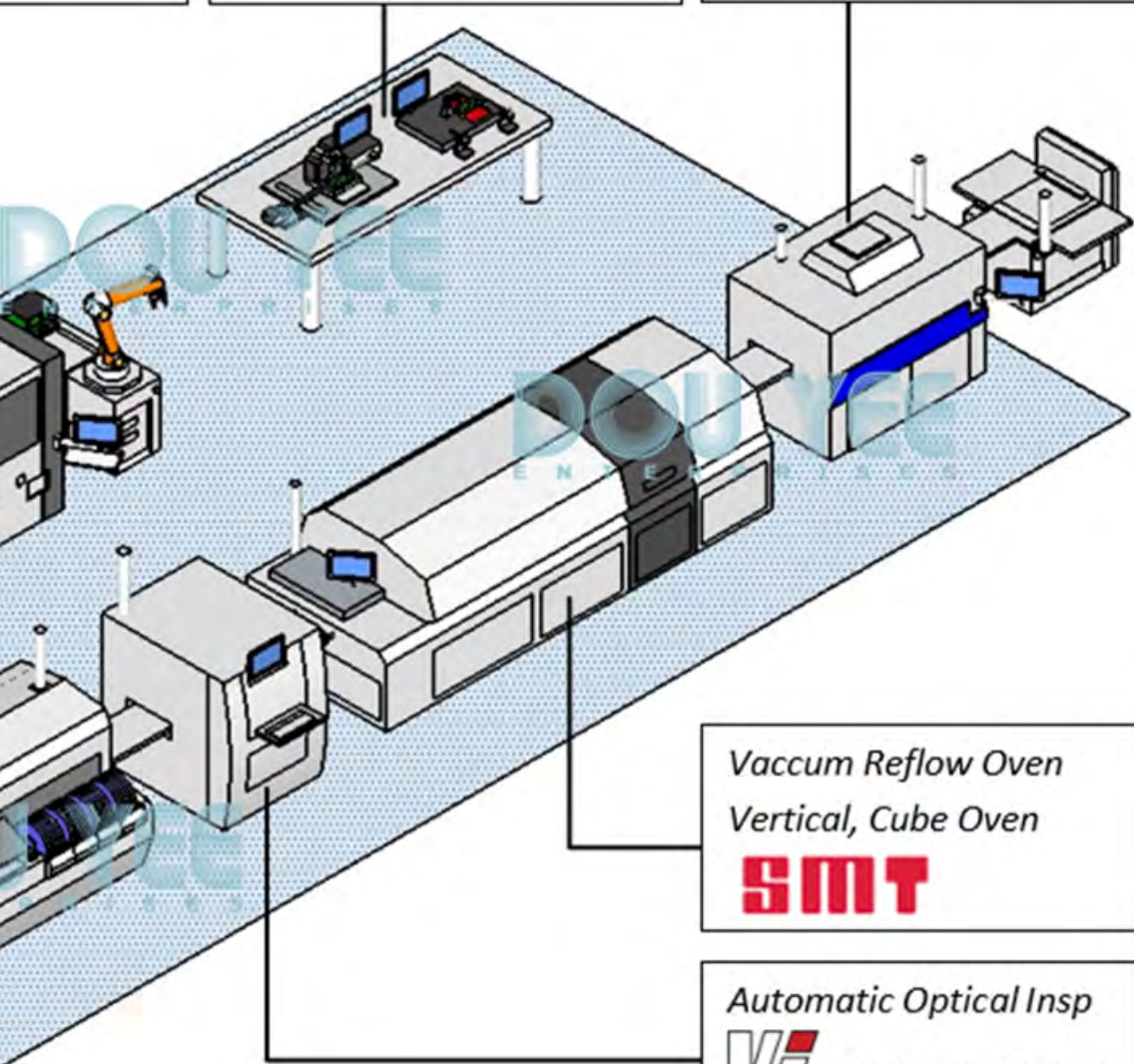
**GPD**



NIC

Rework Systems  
finetech **MARTIN**

Auto Optical X-Ray Insp  
**GOPEL**  
electronic



Vacuum Reflow Oven  
Vertical, Cube Oven  
**SMT**

Automatic Optical Insp  
**Vi TECHNOLOGY**  
MYCRONIC

Pick & Place  
**MYCRONIC**

ive Dispense  
**Global**

Solder Paste Inspection  
**Vi TECHNOLOGY**  
MYCRONIC

## OUR PARTNERS



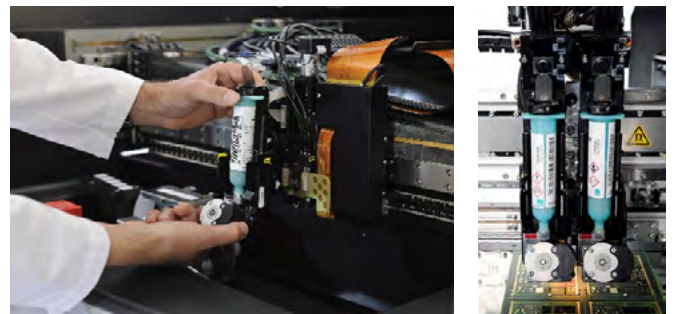
**Denka**

# MY700 Jet Printer

## High Speed Solder Paste Jet Printing



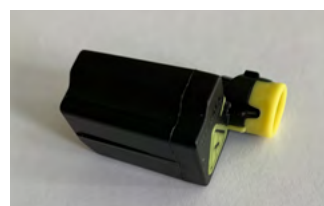
- ▶ A new jet printing and dispensing platform with dual lane and dual head capability for increased throughput
- ▶ No stencils
- ▶ No ordering, handling, storing or cleaning stencils
- ▶ No cleaning solvents or other consumables.
- ▶ Lower operator cost
- ▶ Higher equipment utilization
- ▶ Closed system for solder paste
- ▶ Jet printing uses less paste than screen printing
- ▶ Clean handling - healthier working environment



Holder



Ejector



Filter Box



Cartridge

Jet frequency	Up to 1,080,000 dph
Dot volume	2-35 nl
Dot diameter	0.215 - 0.58 mm

# SMD Tower

## Automated & Intelligent Material Handling



- ▶ Up to 1,148 reels
- ▶ Footprint 1.55 m<sup>2</sup>
- ▶ Average 12 seconds per reel
- ▶ All stock movements are recorded, components are always booked in and out
- ▶ Availability check for ensuring component availability before set-up or production start
- ▶ Kit lists or single part numbers are provided sequentially for shorter set-up times
- ▶ Controlled atmosphere with dry air unit
- ▶ Monitoring of storage atmosphere in SMD tower, temperature and relative humidity
- ▶ Monitoring of floor life (out of bag) for MSDS
- ▶ MSD classification according to IPC/JEDEC 033B
- ▶ Warning message for exceeded floor life



# MY300 Series

## High Mix At High Volume

- ▶ Easy to program
- ▶ Vision auto teach
- ▶ Feeders with no moving parts
- ▶ State of the art material handling
- ▶ Design for high speed in a high mix environment
- ▶ High actual throughput in a dynamic environment
- ▶ Maximum board size up 640 x 510 mm



## PI Series

### 3D Solder Paste Inspection



#### ▶ Auto-Programming

Operator independent inspection performance

#### ▶ Ease of Use

Intuitive and industry's best 100% tactile graphical user interface for anyone to use for low to high volume

#### ▶ Unmatched Review

High-resolution textured 3D images with ultra-large FOV delivers fast and reliable defect classification

#### ▶ Control of Print Process

Combined with SIGMA Link software suite, inspection data becomes actionable process information

#### ▶ Accuracy Not Just Repeatability

Patented Z-referencing technology overcomes the limitation of traditional SPI and brings unprecedented accuracy

## Sigma Link



▶ Unique SPI-AOI connectivity enabling sustainably **high first pass yield** & line efficiency

▶ **Real time process monitoring** with live mode and **accurate defect root cause analysis** with drill down capability down to images



## K3D Series

3D Automated Optical Inspection



► **Automatic Optical Metrology Capability**

Secured by flexible algorithm-based modelling & new 3D-based JEDEC library enables high inspection coverage, stability, portability and critical measurement capability for high-reliability applications

► **100% Offline Programming and Tuning Capability**

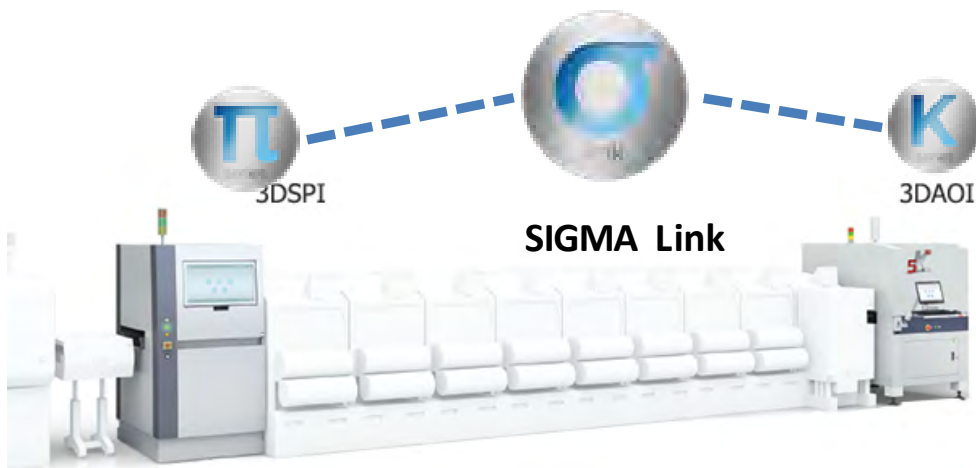
From NPI and ramp up to mass production with a test coverage enhanced and secured by Library Pro

► **Great Textured 3D Image Review**

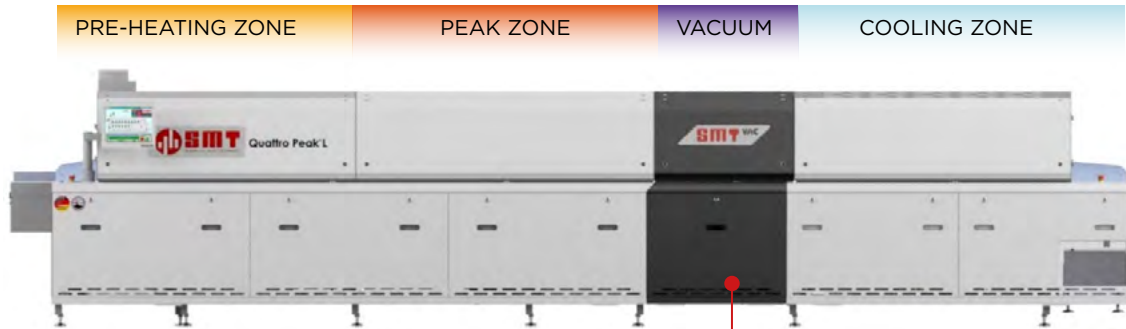
Deliver fast and reliable defect classification

► **Proven & Cost Effective Platform**

Offers low total cost of ownership



# SMT Vacuum Reflow Oven



## Vacuum Chamber

- » Voids will be reduced up to 99%
- » Made of stainless steel
- » Sturdy towards thermal and physical stress
- » Only one sealing in the vacuum chamber
- » Easy, fast maintenance / exchange
- » Easy accessibility due to the mounting point of the hood
- » Available in two sizes: 320 mm length or 450 mm length
- » Process Temperature (Pre-heat/Peak/VAC): Max. 300°C/ 350°C/ 300°C

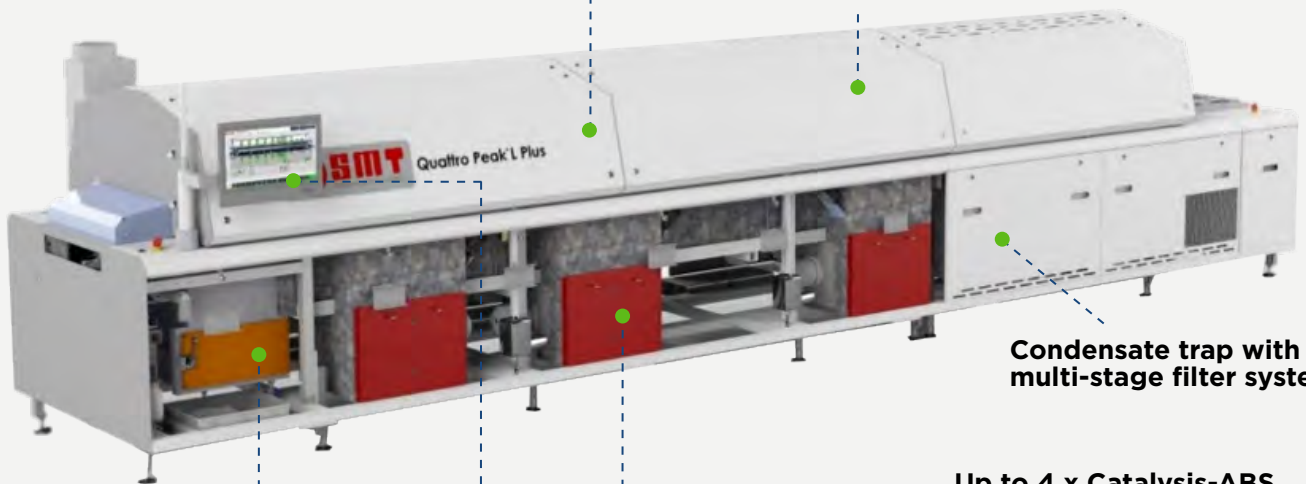


## Gas-Tight Fan Units

- » Constant process gas flow, adjustable via frequency converter
- » Encapsulated, maintenance-free fan motor, no leak
- » Energy and nitrogen savings

## Precise Nitrogen Control

- » Integrated lambda sensor technology and real-time continuous measurements of residual oxygen
- » Less nitrogen consumption
- » Easy calibration (exchange can be done)



**Infeed condensate trap**

## Lowest Operating Costs

- » Lowest energy and media consumption
- » Lowest consumption of spare and wear parts (e.g. rails, chain, fan motors...)

**Condensate trap with multi-stage filter system**

## Up to 4 x Catalysis-ABS

- » Use of Catalyst granulates
- » Better cleaning performance

# Vertical (Oven) Temperature System

## Vertical-Curing & Temperature Treatment Process



- » Temperature +50°C up to 200°C
- » Carrier size (400x400 mm)
- » 3 or 4 zones up and down
- » **Horizontal HTT 8.0K3.0 - 4 lane transport:**  
Footprint approx. 25 m<sup>2</sup>
- » **Vertical VH8 - 6 heating zones and 2 cooling zones:**  
Footprint approx. 3.5 m<sup>2</sup>

### Benefits

- » Manually or automatically operated
- » No Transport Lubrication required
- » Cooling zones available
- » Minimal footprint Dimensions
- » Length = 1,600 mm
- » Width = 2,050 mm
- » Height = 3,410 mm

**VH8 = 86% Less Footprint**

SMT

# Cube-Temperature Treatment System

## Prefect Pre-treatment for Electronic Components & Modules



**Hot Function Tests  
60°C up to 140°C**

**Cooling to  
room temperature**

**Cold Function Tests  
-10°C up to -50°C**



Robotic Arm for Load/Unload

### Benefits

- » Small Footprint
- » Minimal Maintenance Effort
- » Lean-Concept
- » Manual or Automatic Load/Unload
- » Load/Unload on the same side

## Laser Marking Cell

- » Class 1 laser marking system
- » Welded steel structure
- » Hybrid system with combined X, Z & Y axes
- » Max marking area 700 x 450 mm
- » Fiber laser with fixed pulse (std) or variable pulse (opt)
- » 20, 30, 50 W laser power (to be selected upon ordering)
- » Ready for installation of W axis (optional)
- » TTL or lateral vision system (optional)
- » Pneumatic door with safety edge
- » Smart focus and 3 axes joystick as standard equipment
- » Barcode reader for programming from production order
- » Operator's console with double screen (optional)
- » Integrated suction system with a 3 stages filter (optional)



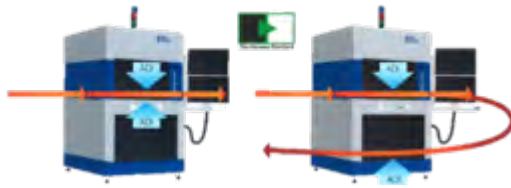
## Automatic Loader/Unloader

- » Sturdy and stable design
- » User friendly 'soft touch' LED membrane control panel
- » Pneumatic clamps provided for magazine alignment
- » Pressure regulated pneumatic pusher
- » High throughput with short magazine change-over time
- » SMEMA compatible

## Mini High Speed Loader/Unloader

- » Applicable to various substrates, leadframes or carriers
- » Servo control lifting motion
- » High speed and precise indexing
- » Machine size depends on the type of magazine used
- » Stores up to 10 different types of magazine dimensions
- » Stainless steel magazine guide
- » Pneumatic pusher pressure regulated
- » Easy loading or unloading of magazines
- » User friendly touch screen panel
- » SMEMA compatible





## THT Line

### AOI System for THT Assemblies

- » Inspection of THT components, THT solder joints and wave-soldered SMD components
- » Automatic or manual loading of assemblies with or without carrier
- » Double-sided inspection of THT assemblies on the upper transport or lower return

## OPTICON X-LINE 3D, AXI.AOXI

### 3D In-line X-ray Inspection System

- » Maximum fault coverage using digital tomosynthesis
- » Outstanding inspection speed

### Benefits of the 3D X-Ray Inspection

- » Safe inspection of double-sided assembled PCBs
- » Reconstruction of any layers
- » Spatial allocation of detected faults
- » Fast and user friendly test program generation by using a single unified library



## Pilot Inspect

### Touch-based. Intuitive. Mobile

- » Intuitive, touch-based operating software for AXI
- » Short training time
- » System monitoring and operation via mobile devices
- » Apps for system control, calibration, monitoring
- » Digital, usage-based maintenance plan
- » Real-time machine status with help text for trouble-shooting
- » Connection to MES Systems via Pilot Connect plug-ins





## Fineplacer FEMTO 2

### Flexible Assembly Platform

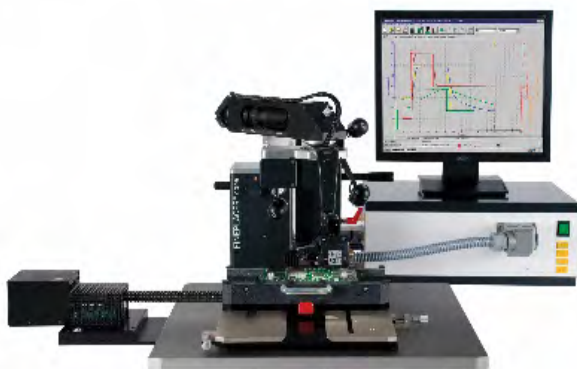
- » Placement accuracy 0.5 µm @ 3 sigma
- » Component sizes from 0.05x0.05 mm to 100x100 mm
- » Fully automated operation
- » Pattern recognition for automated placement and bonding processes
- » FPXvision™ maximum resolution across large field of view



## Fineplacer SIGMA

### Flexible Assembly Platform

- » Placement accuracy 0.5 µm
- » Component sizes from 0.1 x 0.1 mm to 80 x 100 mm
- » Supported substrate size up to 450x300 mm<sup>2</sup>
- » Bonding forces up to 1,000 N
- » FPXvision™ high resolution for all magnifications
- » Capable of sintering bonding process



## Fineplacer CORE

### Industry Leading Cost Effective Rework

- » Placement accuracy 25µm
- » Component sizes from 0.25x0.25 mm up to 90x90 mm
- » Board size up to 400x310 mm
- » Automated processes with force measurement
- » Vision alignment system with fixed beam splitter
- » Real time process observation camera

Re-balling

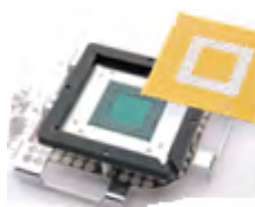


## MiniOven 04

- » An optimal re-balling and pre-bumping system
- » Efficient infrared underheater
- » Optimized heat distribution from convection
- » Easy to use operator controls
- » Process gas N2 support. Displaces oxygen, providing an ideal soldering environment



Easy distribution of solder balls on a universal mask



Reballing fixture housing reballed BGA



QFN pre-bumping mask with solder paste printer



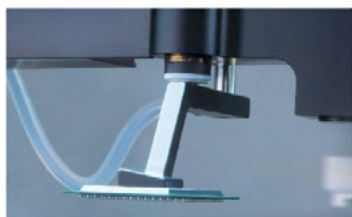
Squeegee applied solder paste

## Expert 10.6 HV

Rework

### Rework Platform

- » HD vision system
- » Non-contact IR sensor with laser pointer
- » HD side view camera
- » AVP automated component alignment
- » Convection top heater
- » Hybrid bottom heater



### Automated Component Alignment

Package recognition AVP performs component alignment and precisely places the component automatically for soldering



### Residual Solder Removal

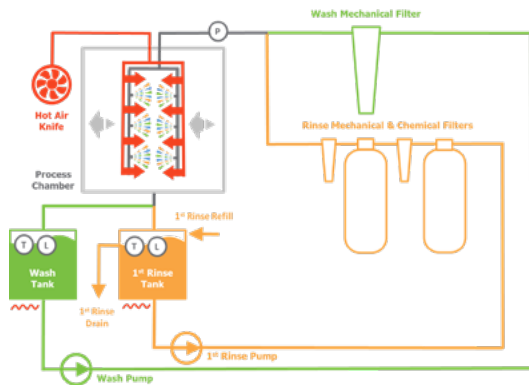
Eliminate scratching of solder pads/PCB via easy-to-use vacuum method • No solder wick needed

# SuperSWASH

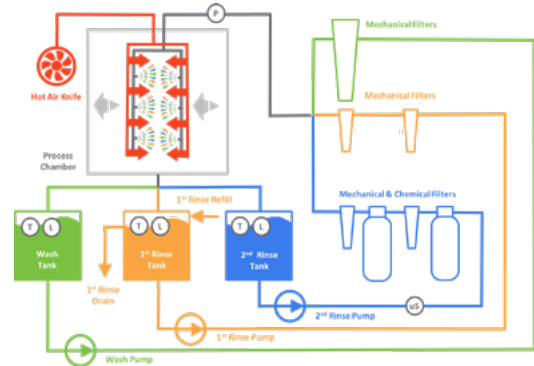
## Automatic Spray Cleaning System



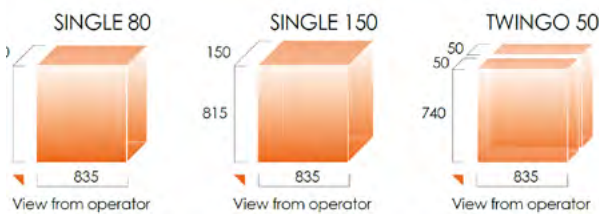
- » Fully automatic spray-in-air closed loop zero drain system
- » Double capacity configuration TWINGO
- » Linear direct spray for equal washing of entire surface
- » Double rinse option
- » Hot air direct dry technology
- » Illuminated glass door for visual processes control
- » Process steps with up to 5 sub-steps for greatest flexibility
- » Low consumption of chemicals and water
- » Intuitive touchscreen interface with Window OS
- » Complete datalogging, Lan connectivity
- » Barcode traceability
- » Personalized password security



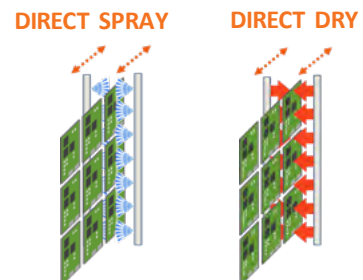
**SuperSWASH II**



**SuperSWASH III**



**Usable Space of Chamber (Including fixtures & Clamping)**



**Unique Features**





## MiniSWASH

### Spray Cleaning System

- » Fully automatic spray-in-air closed loop zero drain system
- » Low consumption of chemicals and water
- » Synchronous, double-sided, constant speed motor-driven nozzle manifold
- » Rotary Direct Spray Bars
- » Hot air direct dry technology
- » Synchronous motion check
- » Anti-collision system



## CompaCLEAN

### Automatic Spray Cleaning System

- » Fully automatic spray-in-air closed loop zero drain system
- » Illuminated glass door chamber for visual process control
- » Intuitive touchscreen interface with Window OS
- » Complete datalogging, lan connectivity and optional barcode traceability
- » Personalized password security
- » Oscillating basket fixed spray bars
- » High volume batch size
- » Fixed nozzle system
- » Powerful hot air dryer



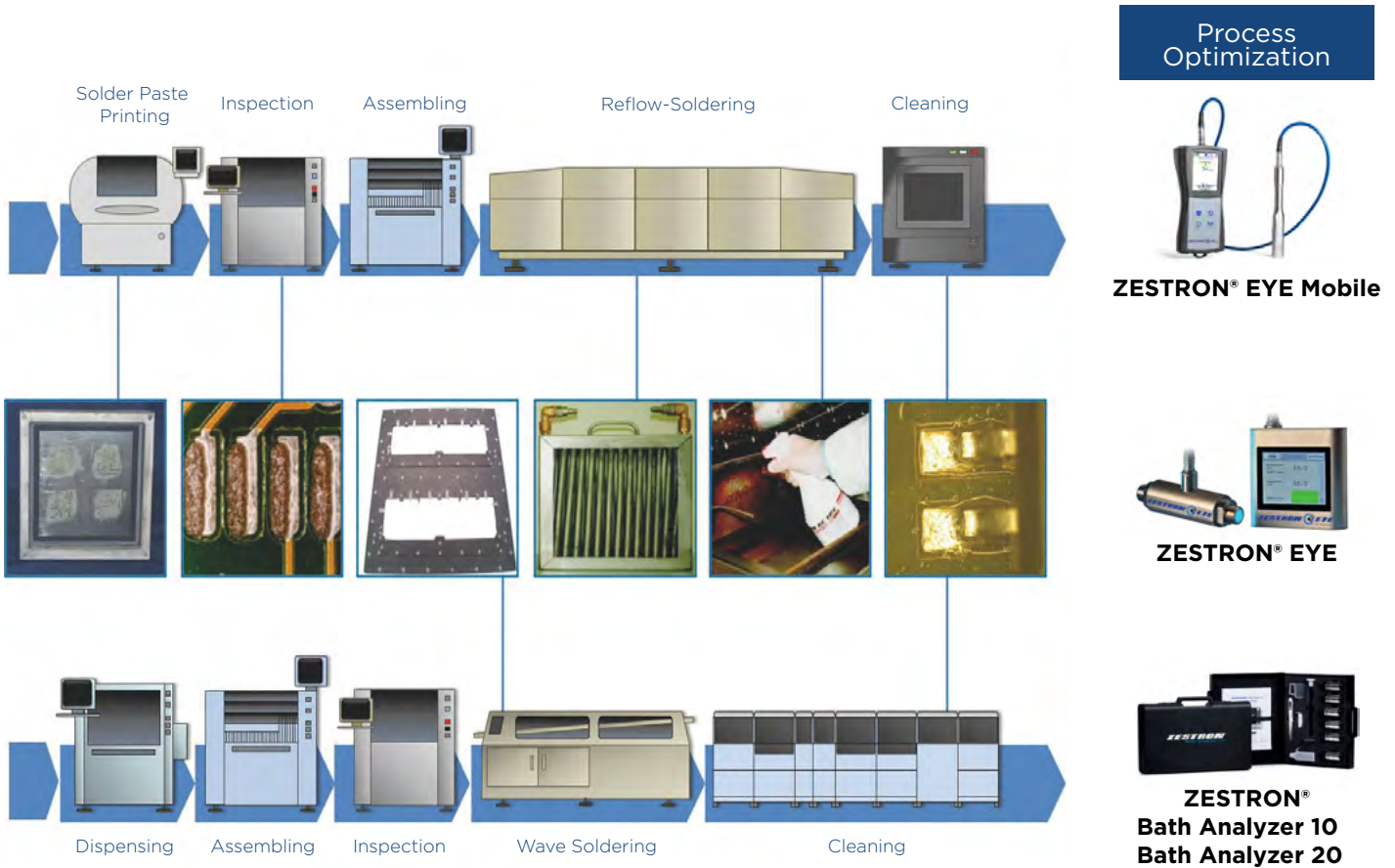
## UniCLEAN

### High Throughput Flexible Cleaning System

- » Automatic parallel transport system or robotic one which allows select specific sequence of processes.
- » Combination of different agitations methods
- » Cleaning capacity comparable with in-line mesh belt systems
- » Up to 6 chambers for various combinations of wash, rinse, dry
- » Complete datalogging, process traceability and optional barcode control



# Cleaning Applications in the Electronics Assembly Process



No.	Description	Products
1	Stencil	Vigon SC200 Vigon SC210
2	Mis-Print PCB	Vigon SC200 Vigon SC210
3	Pallets	Atron SP200 Atron SP300
4	Reflow Oven Condenser Trap	Atron SP200 Atron SP300
5	Reflow Oven Maintenance	Vigon RC101 Vigon RC303
6	Defluxing	Vigon A200 Vigon A201 Vigon N600 Zestron FA+ Hydron SE230A

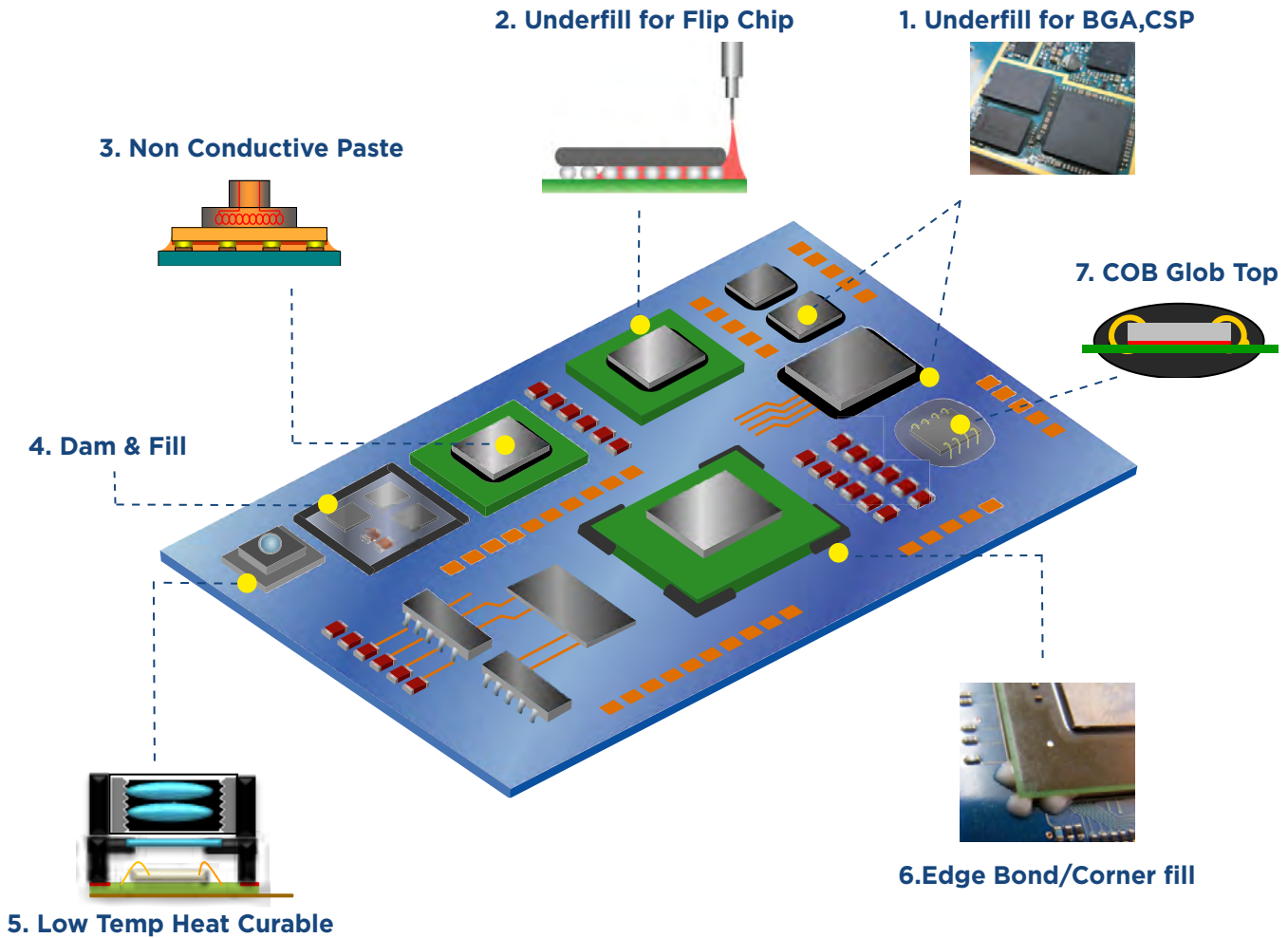
The Recommended Product for Cleaning in Electronics



ALL ZESTRON®, VIGON® and ATRON® based products fully comply with the requirements of the European Directives WEEE and RoHS

# Adhesive System Engineering Consulting

UV Curable | Heat Curable | Anaerobic



No.	Products	Characteristic
1	Underfill for BGA,CSP	Low CTE type / Low viscosity type
2	Underfill for Flip Chip	Capillary flow type / for Cu pillar / for TSV
3	Non Conductive Paste	Voidless NCP
4	Dam & Fill	Low stress type
5	Low Temp Heat Curable	80 X 10 mins
6	Edge Bond/Corner fill	High Viscosity & High thixotropy
7	COB Glob Top	High Tg type / Low stress type



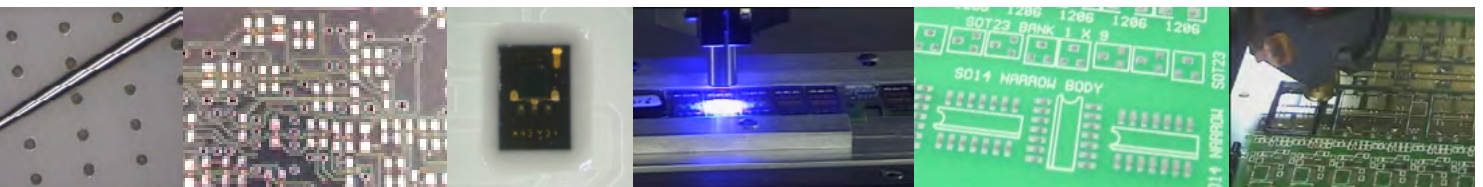
## MAX Series

- » Compact foot print
- » Rock steady unibody frame
- » Auto X,Y,Z calibration
- » Heated/Non-heated dispensing capabilities
- » Accuracy of  $\pm 0.001''$  (0.025 mm).
- » Up to 38,000 dph
- » Linear speed 30"/sec (762 mm/sec)
- » Up to 2 valve capability
- » Red/blue light illuminator
- » High speed GPD Cyclops™ Vision
- » Needle cleaner
- » Work area up to 14.1" X 12" (358 mm x 305 mm)



## MICROCELL

- » Compact foot print
- » Rock steady unibody frame
- » Auto X,Y,Z calibration
- » Accuracy of  $\pm 0.001''$  (0.025mm)
- » 2 Valve capability
- » Red/Blue light illuminator
- » High speed GPD Cyclops™ Vision
- » Needle cleaner
- » Work area 12" x 12" (305 mm x 305 mm)
- » ClearVu™ Vision (programmable zoom & focus)
- » Ergonomic, side mount monitor arm
- » Live process-viewing camera & display





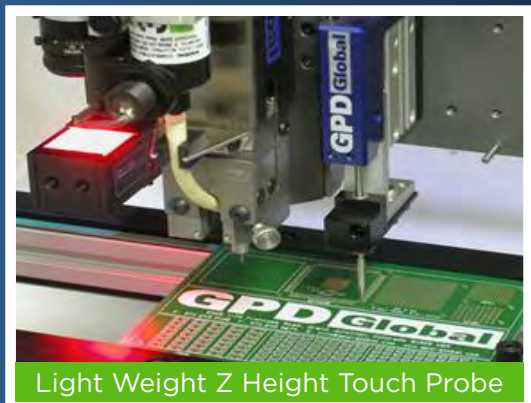
## DS Series

- » Inline, standalone & heated models
- » Auto X,Y,Z calibration
- » Accuracy of  $\pm 0.0015''$  (0.0381 mm)
- » 3 Valve capability
- » Red/Blue light illuminator
- » 28,000 dph
- » Needle cleaner
- » Work area up to 24" x 24"  
(609 mm x 609 mm)
- » Automatic vision

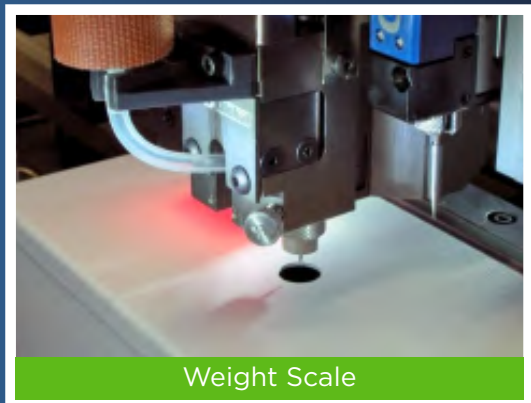
**GPD Global**<sup>®</sup>  
Precision Dispensing Systems



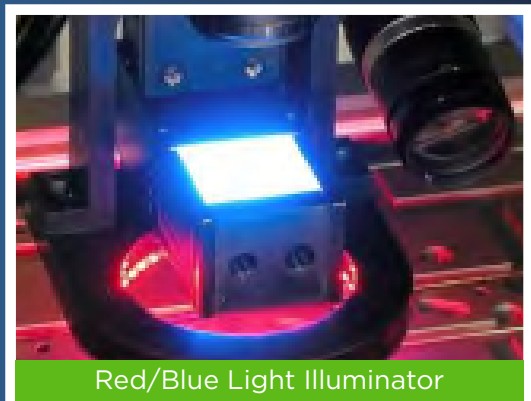
Automatic Calibration Station



Light Weight Z Height Touch Probe



Weight Scale



Red/Blue Light Illuminator

## PCD Valve

### Positive Cavity Displacement

- » True volumetric dispensing for low and high viscosity materials
- » High torque servo for accuracy
- » Able to easily dispense heavily filled materials
- » **Will not shatter or smash fillers**



Rotor



Stator



## Precision Auger

- » Encoder with 57,000 counts per revolution
- » Servo motor control
- » High torque transmission
- » Quick release cartridge
- » High Volume and Micro Volume types



### Low & High Volume Cartridges & Augers



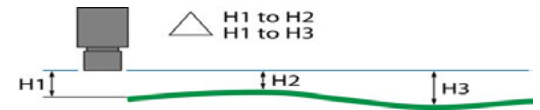
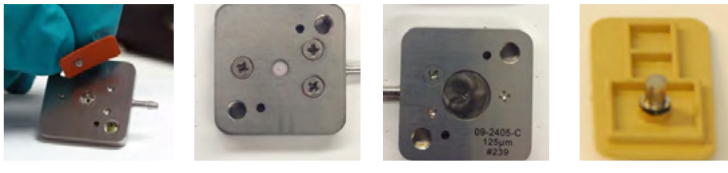
μVolumn

HyVolumn

# NCM5000 Valve

## Non Contact Jetting

- » Non-Contact Jet-on-the-Fly
- » High Repeatability
- » Integrated heater
- » Easy-to-Clean, jet stays on unit
- » Replaceable diaphragm
- » No sliding seals to wear or leak



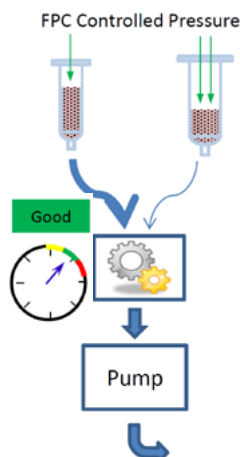
GPD



# FPC

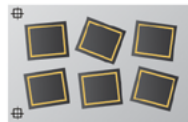
## Real Time Monitor

- » Real time fluid compensation is necessary
- » FPC assures a consistent feed of fluid to the to dispense pump
- » Regardless of
  - » Reservoir size
  - » Level of fluid in the reservoir
  - » Stiction of the stopper or plunger
- » **NO MORE OPERATOR INTERFERENCE REQUIRED!**

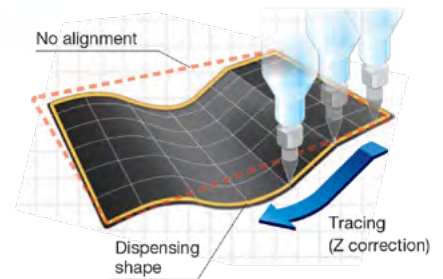


# IMAGE MASTER™ 350PC Smart

SMΩX series



Complete correction of  
device position deviation



## Complete 3-D Alignment

Automatic correction for individual differences in works and pallet array errors

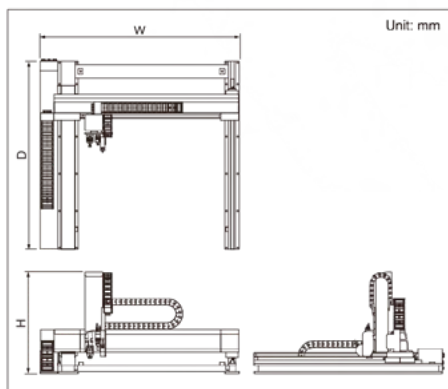
Name		350PC Smart SM200ΩX	350PC Smart SM300ΩX	350PC Smart SM400ΩX	350PC Smart SM500ΩX
Model		350PCS-SM200 OMEGAX	350PCS-SM300 OMEGAX	350PCS-SM400 OMEGAX	350PCS-SM500 OMEGAX
Number of Controlled Axes		3 axes			
Control Method		PTP control/interpolation control			
Travel Range	X*Y	200 x 200 mm	300 x 300 mm	400 x 400 mm	500 x 500 mm
	Z	80 mm			
PTP Operation Speed Setting Range	X*Y	1 ~ 500 mm/s			
	Z	1 ~ 400 mm/s			
Interpolation Operation Speed Setting Range	X*Y	0.1 ~ 500 mm/s			
	Z	0.1 ~ 400 mm/s			
Repetitive Positioning Accuracy X*Y*Z		±0.005 mm			
Transportable Weight		20 kg			



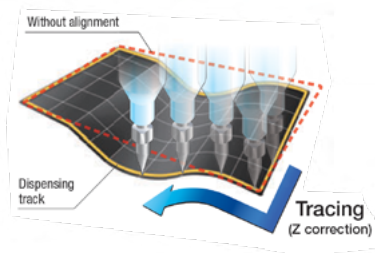
# X CROSS MASTER™ Sx series



## Outside drawings



Desktop / Inline Dispensing

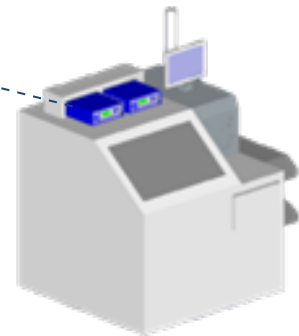


Complete correction of device position deviation

MUSASHI

Name		<b>350PC Smart XMΩX</b>			
Model		350PCS-XM OMEGAX			
Number Of Controlled Axes		3 axes			
Control Method		PTP control/interpolation control			
Working Area X*Y		300x300 mm	400x400 mm	500x600 mm	700x800 mm
Working Area Z		150 mm			
PTP Operation Speed Setting Range	X*Y	1 to 500 mm/s			
	Z	1 to 400 mm/s			
Interpolation operation speed setting range	X*Y	0.1 to 500 mm/s			
	Z	0.1 to 400 mm/s			
Repetitive positioning accuracy X*Y*Z		±0.005 mm			
Tool Payload Weight		8.7 kg			
Main Unit Dimensions (excluding protrusions)	Width (W)	831 mm	931 mm	1031 mm	1239 mm
	Depth (D)	671 mm	771 mm	971 mm	1171 mm
	Height (H)	630 mm			
Main unit weight		80 kg	91 kg	120 kg	143 kg

# Super $\Sigma$ CM III<sup>TM</sup>



Die-Attach Paste Controller

## Proven high-precision dispensing of the highest quality

- ▶ Unparalleled, high-precision dispensing with full digital control. Equipped with an Air Pulse Stabilizing Circuit (PAT.) as standard
- ▶ Settings for minimum dispensing time enhanced to 1/5 for higher definition dispensing

Product Name	Fully Digital Control Dispenser	
Model	S-SIGMA-CM3-V5	S-SIGMA-CM3-V2
Dispensing System	Air Pulse Method	
Control System	Microprocessor-controlled electronics/Pneumatics	
Dispensing Modes	TIMED mode/MANUAL mode	
Dispensing Pressure Setting Range	0.030 to 0.500 MPa	0.005 to 0.200 MPa
Dispensing Time Setting Range	0.001 to 9999.999 secs	
Vacuum Pressure Setting Range	-0.020 to 0 MPa	
Main Functions	<ul style="list-style-type: none"> <li>• Automatic correction of volume reduction</li> <li>• Automatic fluid drip prevention and vacuum correction</li> <li>• Automatic low volume alert</li> </ul>	
Channel Number	100 channels	
RS-232C Serial Communication	Available	

## DISPENSING ACCESSORIES



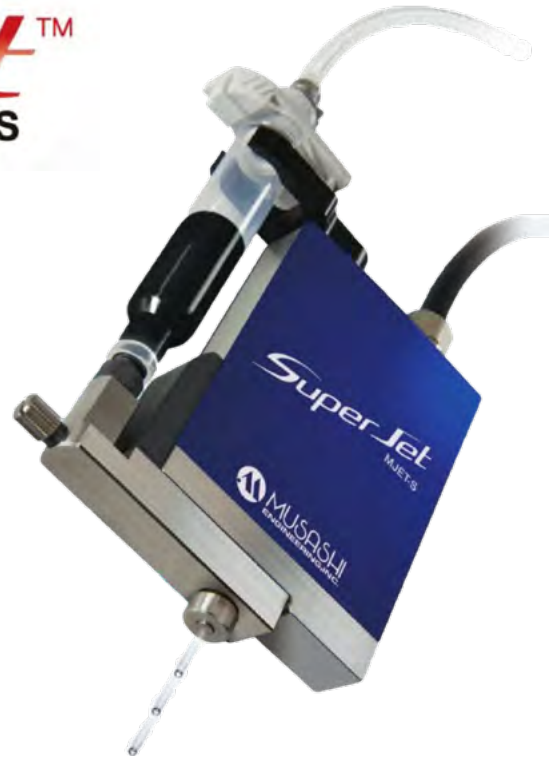
Ultra-high-speed and Non-contact JET dispenser

# SuperJet™ MJET-S

- Ultra-high-speed** Max : 1,200Hz
- Micro-deposit** No more than 0.5 nL/shot
- High-precision** No more than ± 1%

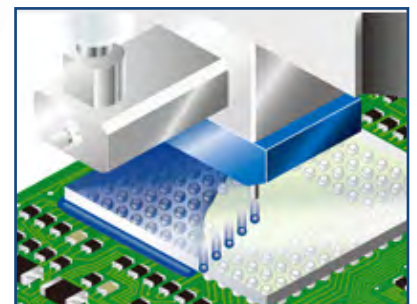
## Application

- ▶ Conformal Coating
- ▶ Underfill Dispensing
- ▶ Silicon-based Liquid Dispensing
- ▶ Tab Reinforcement
- ▶ Smartphone Cover Adhesive

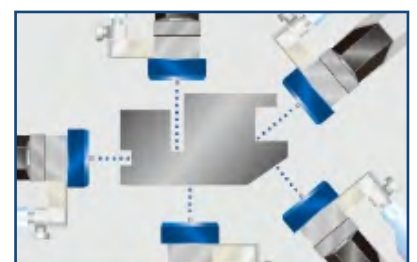


MAX Speed  
**333**  
shots/sec.

# AeroJet® MJET-A



Underfill Dispensing



Pinpoint Shooting

## Application

- ▶ Jet-dispense AG paste on lead frame
- ▶ Jet-coat PCB to prevent moisture for automotive industry
- ▶ Jet-dispense UV resin
- ▶ Jet-bond various electronic parts
- ▶ Able to make any kind of dispensing, dotting, lining, coating and more

**UV LED Type**

**AREA**



H-20AH4-FS1



H-4MLH84-1S12-SM1

**LINE**



LS-320-V4-MF1



H-2MLH16

**SPOT**



H-1VH



H-1VH4+HDL-Q1

**UV Light Source Type**



Execure 4000



UL-750

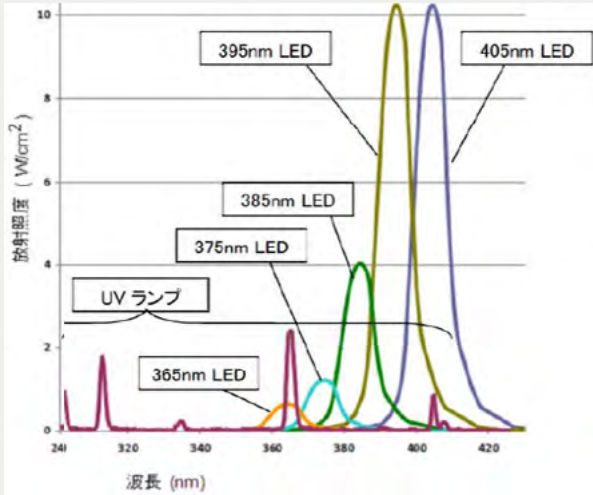
**UV Meter**



HM-2. HD-365S. HD365

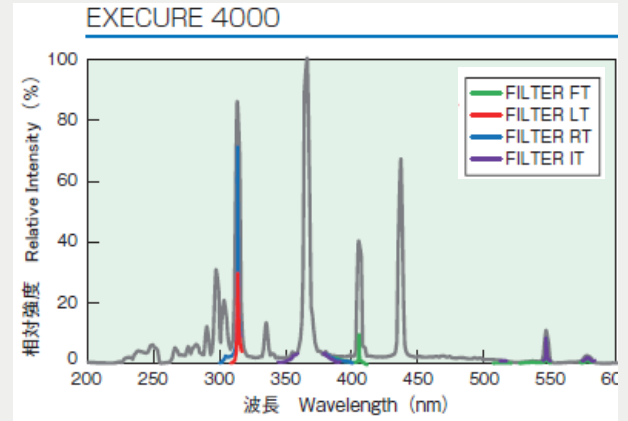
UV Light Technology

SPOT



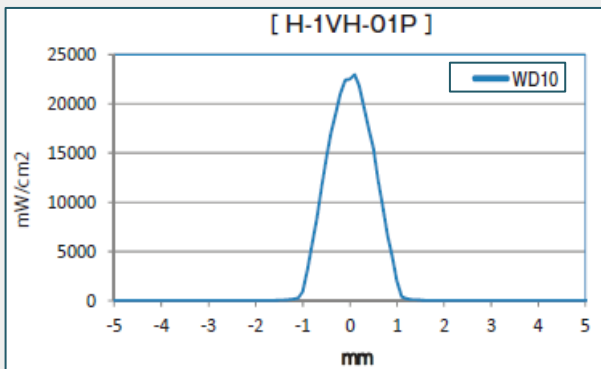
- » High Irradiation Intensity
- » Low Power Consumption
- » Air Cooled Led Design
- » Integration Friendly
- » Long Chip Lifespan

LIGHTSOURCE - Multi Wavelength

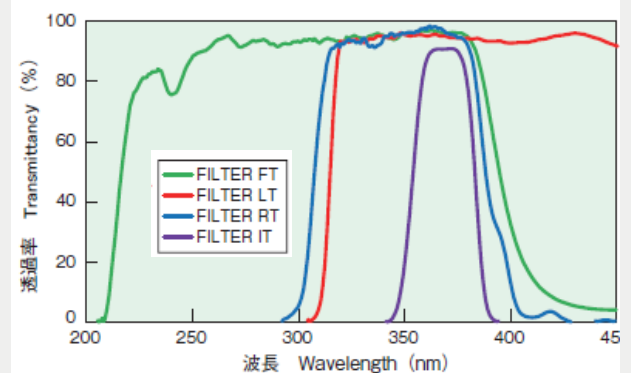


- » Stable Irradiation Uniformity
- » Ease of Maintenance
- » Flexible Layout & Support
- » Long Lamp Lifespan
- » Interchangeable Filters

HOYA Lens - SUPER Intensities



FILTERS



Adhesion/Bond Cure



SEAL / COAT

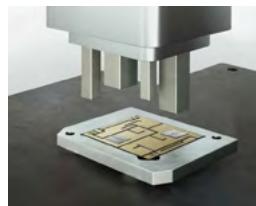


## X-Sintering

### Patented State-of-the-art Fully Automatic Sintering Press



- » Multi-Punch press tool to reach every single component on the substrate
- » Sinter Multiple Dies with different die thicknesses
- » Max. pressing area: 320x270 mm
- » Max. temperature: 320°C
- » In Line Modular Station
- » High Precision, Flexible, Accurate Process Control
- » Wide range of devices:
  - ▶ LEDs
  - ▶ Power Devices Clip/Heat-sinks Assemblies,
  - ▶ Solar (CVP) Cells
  - ▶ Custom Designed Power Modules...



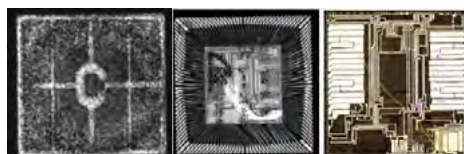
**PATENTED**  
**Multi-Punch System**



## X-SAM

### C-SAM Scanning Acoustic Microscope

- » Fully automatic solution for Quality Control in power electronics industries
- » Non-destructive Inspection In-line process
- » Patented Preserved Components on Substrate "Top Side"
- » Line modular station, flexibility and accuracy during the testing stage
- » Flexible and adjustable load/unload system





## LBR iiwa

### “Intelligent Industrial Work Assistants” (iiwa)

- » LBR iiwa is world first lightweight collaborative robot for delicate assembly work
- » Contact and collision protection
- » Last position disturbance memory
- » Payload capacities of 7 kgs and 14 kgs
- » Suitable for all automatic or human-robot collaborative applications
- » Applying /painting /gluing /assembling palletizing / packaging /handling /measuring/inspection/ machining & others



- » LBR iiwa application in SMT Tower
- » Withdrawal/Replacement of reel components
- » Interacts with human operator
- » No Requirement for Safety Fence



## KUKA Mobile Robot - KMR

### Networked Production Environment 4.0

- » KMR iiwa, an Intelligent, flexible, mobile and autonomous platform, uniting with LBR iiwa
- » Robotic strength with sensitivity, a safe, mobile and autonomous platform
- » Highly flexible, location-independent production assistant with an unrestricted workspace
- » No Requirement for GPS, WIFI, Marking or Magnetic Strips
- » An ideal basis for the intelligent, networked production worlds of Industrial 4.0



**Freely Scalable Modular System**



**Maximum Flexibility And Unrestricted Maneuverability**



**Autonomous Navigation**



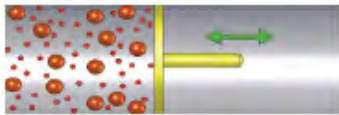
**Utmost Precision & Simple Operation**



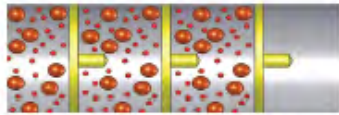
**Safe Human-Robot**



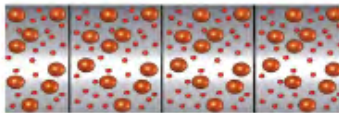
# Volumetric Dosing Systems



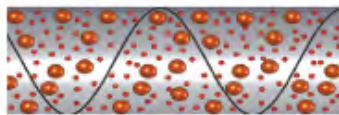
Just imagine a piston.



Or even better, several pistons behind each other.



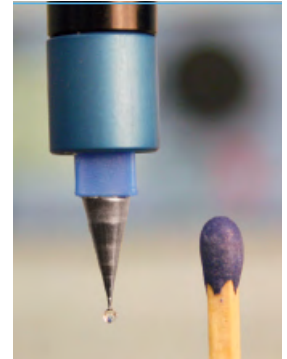
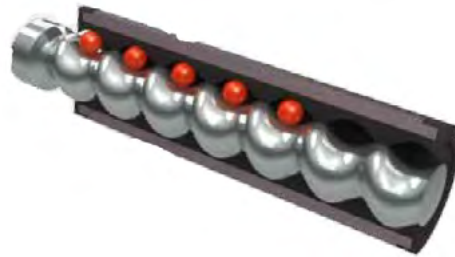
Now we'll make the wall thickness of the piston zero ...



and change the piston shape slightly.



Voilà - the endless piston principle!



- » Endless piston principle
- » Self sealing displacement system
- » Handling Viscosity up to 7,000,000 mPa
- » Fully adjustable dosing quantity
- » Minimum dosing 1  $\mu$ l
- » Accuracy of  $\pm 1\%$
- » Repeat accuracy of  $> 99\%$
- » Configurable mixing ratio up to 100:1

## 2K Dosing

## 1K Dosing



ViscoDuo



EcoDuo



Eco Pen



EC-Metal Free

### Emptying System

### Preparation System

### Dosing System





# Peel Back Force Tester with FORCEWare™

To Set Peel Back Standards For The Entire Industry

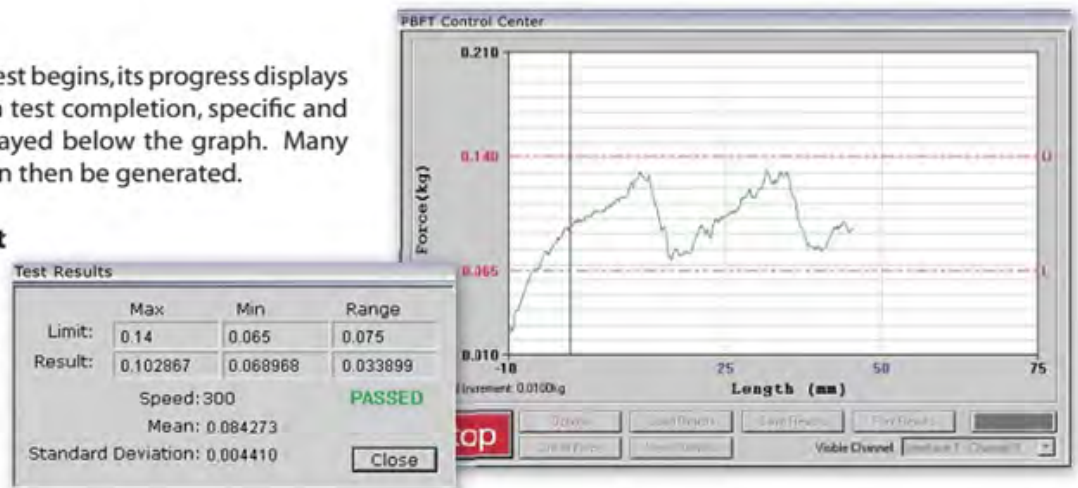


### Test Graph

When a peel back force test begins, its progress displays on the test graph. Upon test completion, specific and summary data are displayed below the graph. Many different graph forms can then be generated.

### Current Results Chart

Displays complete results of test. Results can be saved and reviewed.



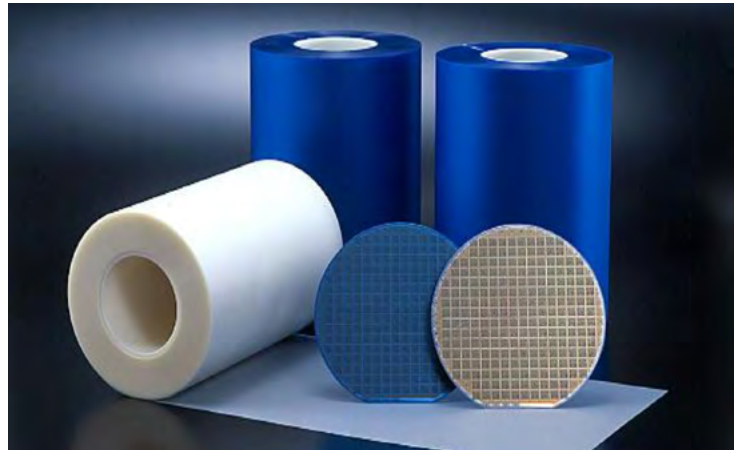
Force Measuring Range	0 - 250 grams
Speed	100 - 600 ±5 mm/minute in 50 mm increments
Angle	160-180 degrees
Accuracy	±3%
Tape Widths	8, 12, 16, 24, 32, 44, 56mm (optional 8 to 120 mm)
Dimensions (H x W x D)	318 x 368 x 737 mm x 30.8 kg
AC Input	100 - 240 VAC
PC/Laptop Control	Windows based proprietary FORCEWare™ Software, Data capture, SPC Analysis

## Back Grinding

### ELEGRIP TAPE

Back grinding tapes protect the surface of the wafer circuits and prevent them from being damaged during back grinding.

Featuring an adhesive agent that eliminates the need for cleaning, ELEGRIP tapes ensure low particle count and stable grinding performance.



#### Features

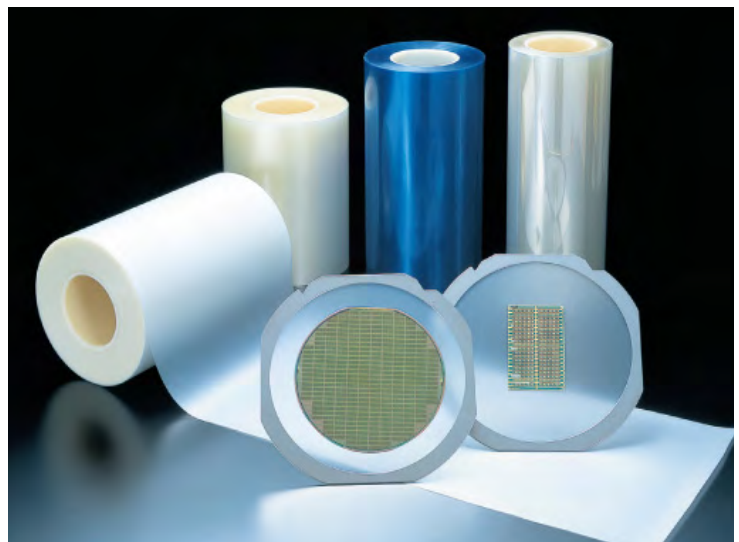
- » Exhibits superior adhesive quality on roughness of patterned surface
- » Ensures stable grinding performance during back grinding (Low TTV)
- » Delivers stable low particle count performance, eliminating the need for cleaning
- » Exhibits stable adhesive strength, unaffected by storage time

## Wafer / Package Dicing

### ELEGRIP TAPE

Pressure-sensitive adhesive tape is used while dicing various types of wafers. We provide the best possible tapes to meet various range of needs.

UV Tape is used while dicing a wide range of work-pieces, including various types of wafers, package substrates ceramics, glass and crystal. For easy peeling, UV dicing tape is exposed to UV Light, to weaken its adhesive strength.



#### Features

- » Wide range of items available with different adhesives (5µm-)
- » Prevent die-fly off and chipping (cracking) on the backside surface
- » Easy pickup (easy to peel)
- » Exhibits superior adhesive qualities for workpieces that are incredibly anti-adhesive, such as EMS
- » Anti-static types are available (optional)

Blank lined paper with horizontal dotted lines for writing.



More than **45** offices across  
*North America, Europe and Asia Pacific*

- Manufacturing Plants -

*Singapore • Malaysia • China • France • Poland*

**DOU YEE**  
E N T E R P R I S E S

**HEAD OFFICE**

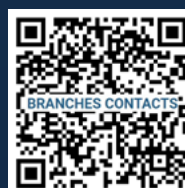
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