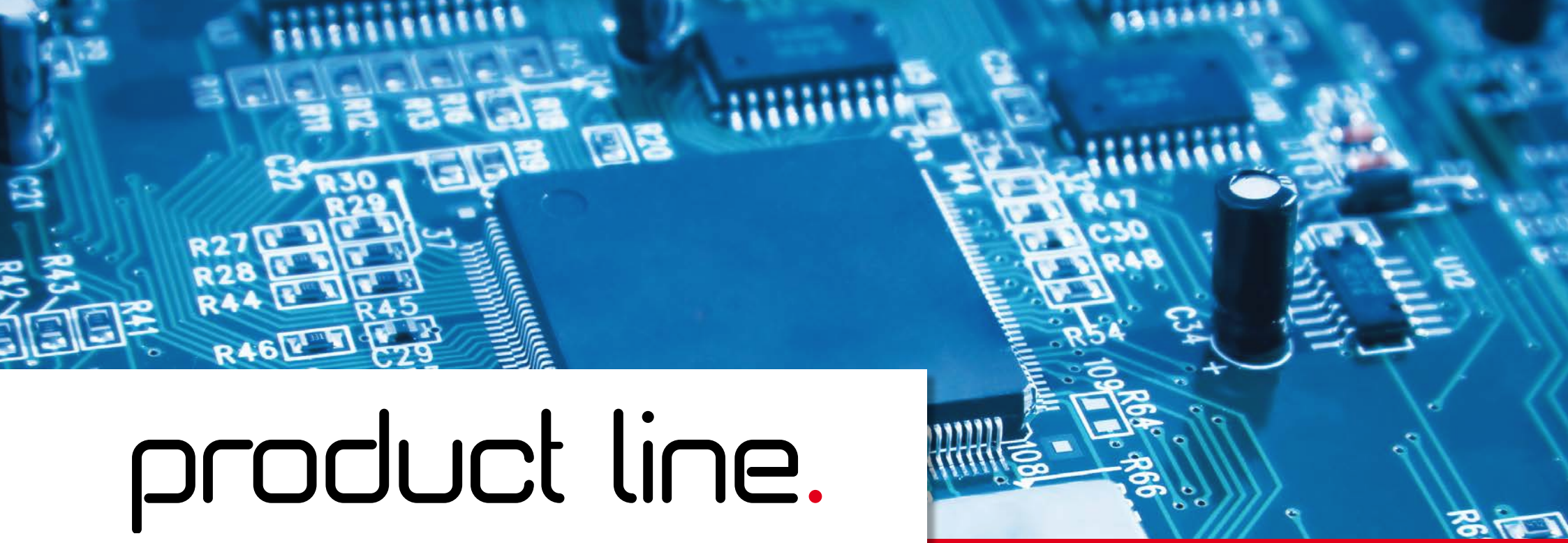


product line.

Electronic & Micro-Mechanical Assembly Equipment

essemtec
swiss made


essemtec
Production
Pick Control
Place Control
Dispense
Production Settings
Process
Stop after completed PCB
Provide spare stock item
Align PCB
Load PCB
Unload PCB
Overview
Setup
Produce
Teach
Statistics
System
Infopage
SINCE 1991
25 years
essemtec

swiss made.

Since 1991 Essemtec has been a global innovation leader in the manufacturing of highly flexible Surface Mount Technology (SMT) production equipment. Essemtec systems are optimized for maximum flexibility. Users can switch from one product to another quickly, making maximum use of available production capacity.

cobra.

ePlace eMis hyQ.

Modular Automatic Pick-and-Place

- 8-axis placement head - Throughput: 18'000 cph
- Intuitive operation using ePlace
- Component range: 01005 to 40x40 mm
- PCB size: up to 450x800 mm

The Cobra is the first SMT placement system that combines the advantages of a highly flexible placement machine with the throughput of an 8-axis placer. State-of-art-material and its unique overall accuracy ensure highly efficient and economical SMT manufacturing.

paraquda.

ePlace eMis hyQ.

Flexible Automatic Pick-and-Place

- 4-axis placement head - Throughput: 12'000 cph
- Intuitive operation using ePlace
- Component range: 01005 to 40x40 mm
- PCB size: up to 600x430 mm

The Paraquda combines three different production steps within one machine platform (solder paste jetting and/or glue jetting and SMD assembly). With this unique combination, the multifunctional center allows an unprecedented flexibility in the market.

fox.

ePlace eMis

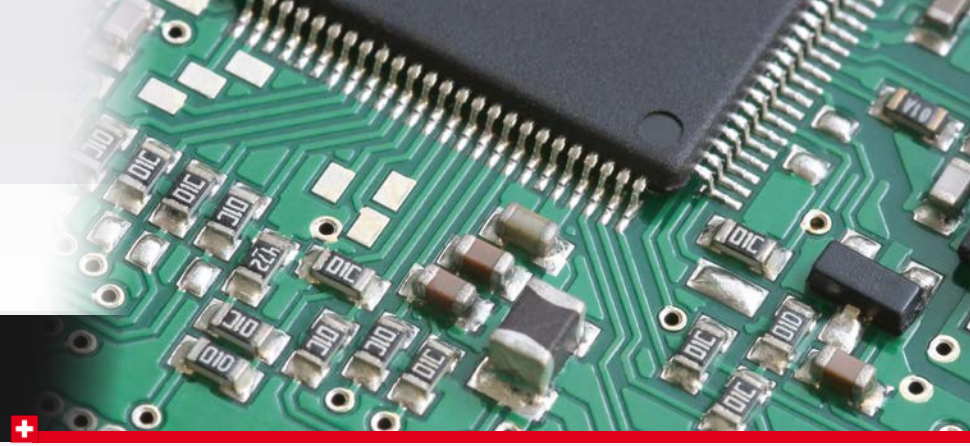
Compact Automatic Pick-and-Place

- 1-axis placement head - Throughput: 5'000 cph
- Intuitive operation using ePlace
- Component range: 0201 to 80x33 mm
- PCB size: up to 406x305 mm

The Fox can drive up to 180 feeders, illustrating its dedication to high-mix production. Due to its small footprint and reasonable weight, the machine is ideal for use in limited space production areas even those located on upper floors.

FLEXIBLE AUTOMATIC

pick and place.



High mix SMT production requires equipment with a unique set of features to allow non-stop operation and extremely fast changeovers for high productivity.

Specifications		Cobra	Paraquda	Fox
Productivity	Max. placement speed / cycle time	18'000 cph / 0.2 s	12'000 cph / 0.3 s	5'000 cph / 714 ms
	Speed according IPC9850A	12'500 cph	8'400 cph	4'500 cph
	Changeover time	< 1 minute	< 1 minute	< 1 minute
Feeder	Feeder capacity 8 mm tape	240 (200 inline)	240 (200 inline)	180 (120 inline)
	Feeder type	hyQ or CLM, programmable	hyQ or CLM, programmable	CLM, programmable
Components	Component size range	01005 - 40x40 mm (80x70 mm optional)	01005 - 40x40 mm (80x70 mm optional)	0201 - 80x33 mm
	Min. lead pitch	0.3 mm (12mil)	0.3 mm (12 mil)	0.3 mm (12 mil)
	Min. component height	> 0.0 mm	> 0.0 mm	> 0.0 mm
	Max. component height	18 mm (25 mm)	18 mm (25 mm)	18 mm (25 mm)
Accuracy	Linear encoder resolution	0.02 µm (x,y)	0.04 µm (x,y)	0.2 µm (x,y)
	Rotation axis resolution	0.007°	0.007°	0.007°
	Placement accuracy (x, y) chips	51 µm @ 3σ	51 µm @ 3σ	50 µm @ 3σ
PCB	Min. PCB dimensions	20x20 mm (0.8x0.8")	20x20 mm (0.8x0.8")	20x20 mm (0.8x0.8")
	Max. PCB dimensions	450x800 mm (17.7 x 31.5")	600x430 mm (23.6 x 16.9")	406x305 mm (16 x 12")
	PCB thickness	0.5 - 3.5 mm (0.02 - 0.13")	0.5 - 3.5 mm (0.02 - 0.13")	0.5 - 3.5 mm (0.02 - 0.13")
	Clearance below PCB	40 mm (1.57")	40 mm (1.57")	40 mm (1.57")
Dimensions	Machine footprint	1520x2055 mm (59.8 x 80.9")	1280x1420 mm (50.4 x 55.9")	880x1090 mm (34.7 x 43")
	Operating floor space	2320x2900 mm (91.3 x 114.2")	2100x2250 mm (82.6 x 88.6")	1395x1650 mm (55 x 65")

Intuitive Pick-and-Place Software · Management Information Software · hyQ. Intelligent High-Speed Feeder · dispense Optional Dispensing for all Pick-and-Place Machines available

scorpion.

Dispenser for SMT High-Volume Lines

- Up to 100‘000 dots/h
- Up to 4 dispensing valves per machine
- Accuracy of 51 µm (3 sigma)
- Dots, lines, surfaces and free form patterns

The Scorpion automatic dispensing machine sets new standards. Thanks to its modern technologies the Scorpion can dispense up to 100’000 dots/h. Fields of application include LED electronics, solar cells, optical or medical devices and micro mechanical systems.

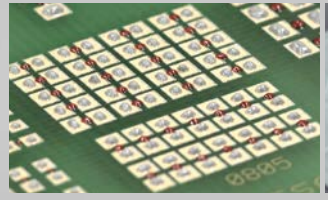
spider.

Compact High-Speed Jetter and Dispenser

- Up to 150‘000 dots/h
- Up to 2 dispensing valves per machine
- Accuracy of 40 µm (3 sigma)
- Dots, lines, surfaces and free form patterns

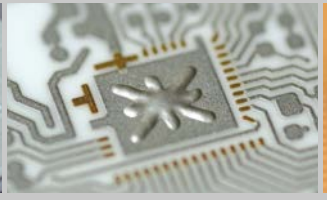
The Spider can jet dispense dots, lines, curves and interpolated 3D contours. Large and small volumes can be altered on the fly which is not feasible with other valve types. Programming and operation are easy and allow the flexible customization of process parameters.

Dispensing Applications



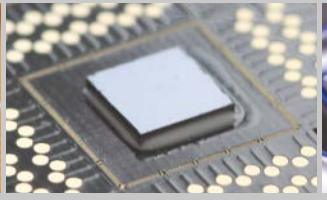
Solder Paste and SMT Glue

LED Encapsulation



Silver Epoxy

Dam and Fill



Underfill

3D Dispensing

VERSATILE HIGH-SPEED dispensing.

Essemtec dispensing equipment can be set up with up to 4 fluid pumps for a wide range of applications from SMT glue and solder paste to chip packaging applications such as underfill and flux jetting.

Specifications		Scorpion	Spider
Process	Max. dispensing speed	Piezo Jet Valve: 100'000 dots/h	Piezo Jet Valve: 150'000 dots/h
		Pneumatic Jet Valve: 60'000 dots/h	Pneumatic Jet Valve: 80'000 dots/h
		Piezo Flow Valve: 20'000 dots/h	-
		Time/Pressure Valve: 20'000 dots/h	Time/Pressure Valve: 28'000 dots/h
		Archimedian Screw: 20'000 dots/h	Archimedean Screw: 24'000 dots/h
	Dispensing mode	Dot, line, curve, interpolated 3D contours	
	Programmable z-stroke	80 mm (3.35")	80 mm (3.35")
	Process height	± 18 mm (0.71")	± 18 mm (0.71")
Accuracy	Linear encoder resolution (x,y)	0.04 µm	0.2 µm
	Placement Accuracy XY Dots	51 µm (3σ)	40 µm (3σ)
	Positioning Accuracy Z Axis	20 µm (3σ)	20 µm (3σ)
PCB	Min. PCB dimensions	20x20 mm (0.8"x0.8")	50x50mm (2 x 2")
	Max. PCB dimensions	600x430 mm (23.6x16.9")	406x305 mm (16 x 12")
	PCB thickness	0.5 - 5 mm (0.02-0.2")	0.5 - 5.0 mm (0.02 - 0.2")
	Clearance below PCB	40 mm (1.57")	40 mm (1.57")
Dimensions	Machine footprint	1280x1420 mm (50.4 x 55.9")	880x1090 mm (34.7 x 43")
	Operating floor space	1700x2250 mm (59.8 x 82.7")	1395x1650 mm (55 x 65")

Intuitive Dispensing Software

Management Information Software

valves.

VJV - Piezo Jet Valve

- High Speed - Up to 150'000 dots/h
- Very constant and stable results
- All applications except for solder paste
- Viscosity: low

VJP - Solder Jet Valve

- Fast Speed - Up to 80'000 dots/h
- Very constant and stable results
- All applications, special for solder paste
- Viscosity: high

VPF - Piezo Flow Valve

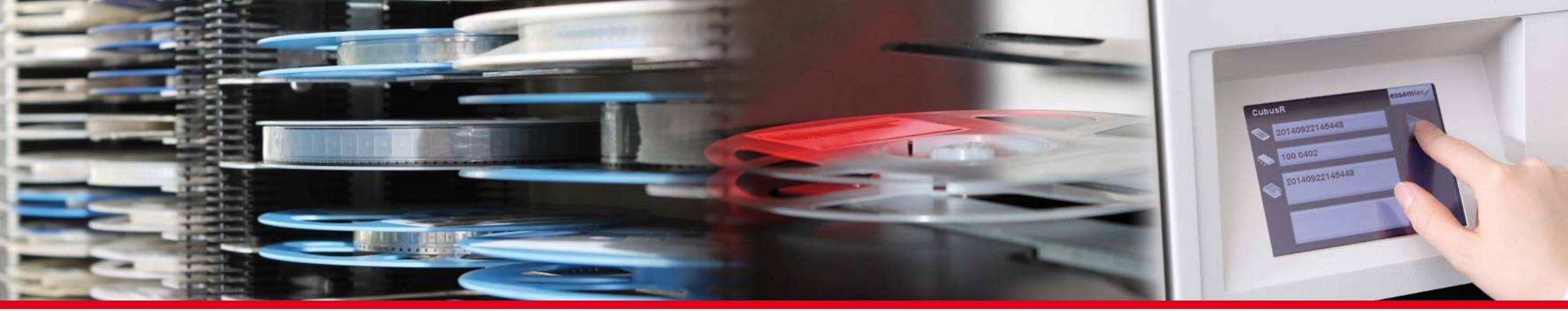
- Medium Speed - Up to 20'000 dots/h
- Very constant and stable results
- All applications
- Viscosity: medium

VTP - Time Pressure Valve

- Medium Speed - Up to 28'000 dots/h
- Large process window
- Simple glue, solder paste & fill applications
- Viscosity: high

VSR - Archimedian Screw Valve

- Low/Medium Speed - Up to 24'000 dots/h
- Constant and stable results
- All glue, solder paste & fill applications
- Viscosity: high



Next Generation SMD Storage System

- Regular: up to 612 reels
- Large: up to 932 reels
- Reel diameters 7 - 15 inches
- Tape width 8 - 72 mm
- Access time 9 - 11 seconds
- Adjustable shelf spacing
- JEDEC trays
- MSD Option

The Cubus (from cubare, Latin for storing) is a fully automated component storage cabinet for reels and JEDEC trays. It can also house boxes with various contents from connectors to assembly materials to PCBs, with a total weight of up to 7 lbs per shelf.

The spacing of the shelves is freely user configurable and thus allows you to adapt the cabinet to your changing needs.

Cubus integrates with

AEGIS SOFTWARE · Panasonic · CompControl · Hanwha Techwin · Universal Instruments · SAP

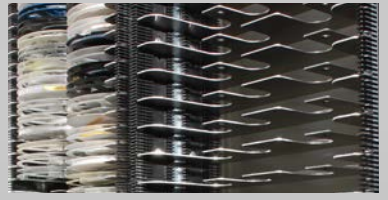
Cubus Workflow


User Adjustable Shelves


Automatic Storage


Bar Code Recognition


Manage Storage Locations


Automatic Calibration

AUTOMATIC EFFICIENT
component storage.

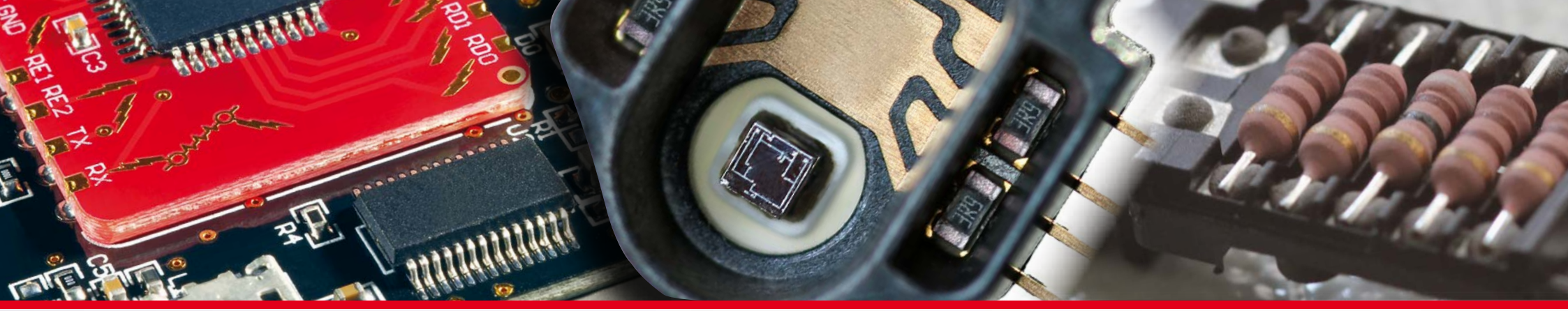
The Cubus can be operated as a component warehouse for smaller manufacturers. Alternatively, the Cubus also serves as “Mini-Market” for high volume lines to avoid any down time due to parts running out.

Specifications	Cubus Regular	Cubus Large
Storage	4-7" reels: 8-72 mm tapes 11-15“ reels: 8-72 mm tapes	4-7“ reels: 8-72 mm tapes 11-15“ reels: 8-72 mm tapes
Maximum capacity	4-7“ reels: 612 or any mix of 4-15” reels up to 4-7” reels: 320 and 11-15” reels: 146 (8mm tape only)	4-7“ reels: 932 or any mix of 4-15” reels up to 4-7” reels: 480 and 11-15” reels: 226 (8mm tape only)
Access time	5-6 reels per minute	
Machine type	Standalone	
Stacks	Flexible stacks for reel storing, adjustable by customer	
Reel detection	Automatic diameter and width detection, automatic barcode detection	
Control	PC, keyboard and LCD	
Operating system	Windows	
Database	Data access via Access table; Connection to existing SQL systems	
Software	Cubus control software; Job planning; MSL tracking (Moisture Sensitivity Level)	
	Bar code label designer & print software; Component stock management software	
	Software interface to eMIS planning and optimization system	
	Adjustable operator language (English, German. Other languages on request)	
	User group rights	

Options on request - Language code, Temperature and humidity measurement, Air dry unit for Cubus,
Individual stack configuration, Internal data matrix code reader, and many more.

eStorage Powerful software manages inventory in multiple storage locations and supports standard warehouse operations such as job kitting, feeder replenishment, and component counting. Rules are used to enforce provisioning behavior such as FIFO. Reels are identified, managed and accounted for with their unique, bar coded ID.

Integration is easily achieved with a file based data exchange that requires nothing else but a network folder. More sophisticated integration using web services have also been implemented. These work like messaging services, similar to WhatsApp. Integration is offered with ASM, Panasonic, Samsung, among others and more vendors are added quarterly.



paraquda-mfc.

Jet Printer - Dispenser - Mounter

- Up to 12‘000 cph and / or 100‘000 dots/h
- High speed jetting of solder paste and glue
- Combination of jet and needle valves
- Up to 240 feeder lanes

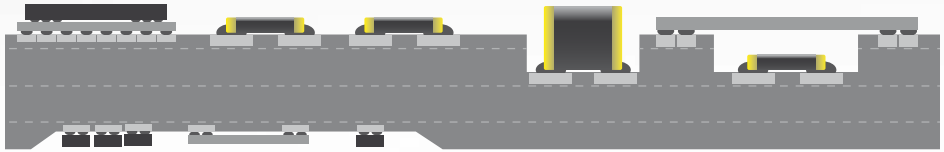
The Paraquda-MFC combines three different production steps within one machine platform (solder paste jetting and/or glue jetting and SMD assembly). With this unique combination, the multifunctional center allows an unprecedented flexibility in the market.

fox.

Dispenser - Mounter

- Up to 5‘000 cph and / or 28‘000 dots/h
- Dispensing of solder paste and glue
- 3D applications
- Up to 180 feeder lanes

The Fox is a compact Pick-and-Place system which allows combined processes on the same platform. The Fox features the flexibility that is required in highly versatile production.
Innovative technology and new materials make the Fox an accurate, variable production center.



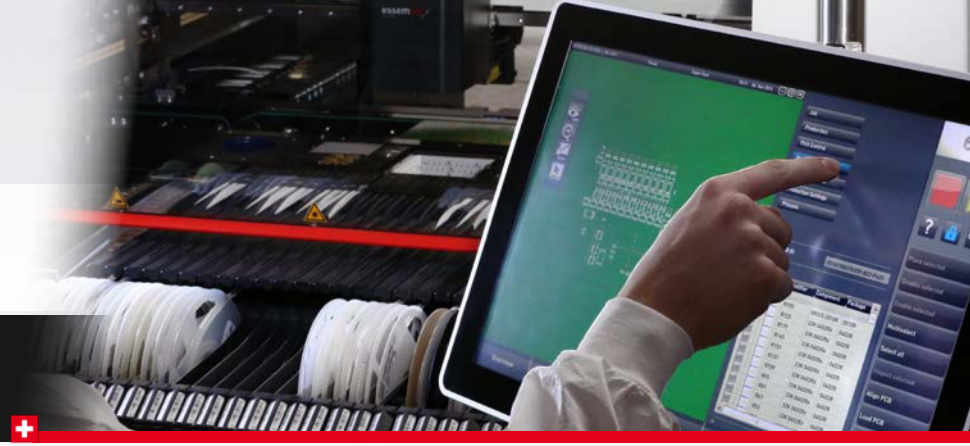
The software allows for an unlimited number of dispense and placement sequences on any substrate or work holder.

A typical workflow would be:

- 1. Insert empty tray
- 2. Pick bottom shell and place in tray
- 3. Dispense first fluid in 3D pattern
- 4. Pick electro/mechanical components and place in bottom shell
- 5. Dispense second fluid
- 6. Pick top shell and close housing

COMBINED PROCESSES

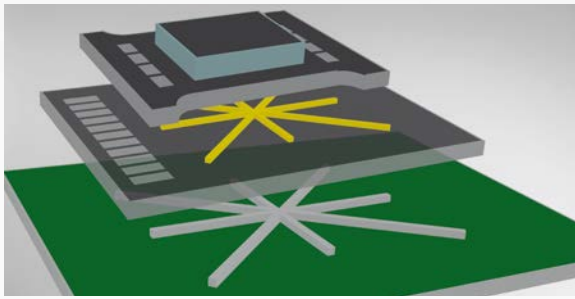
automation.



The combination of dispensing/jetting fluids and placing miniature components with high z-axis stroke can be expanded to build micro cameras, micro lens assemblies, MEMS sensor packages and so forth.

Specifications		Paraquda-MFC	Fox
Productivity	Max. placement speed / cycle time	12'000 cph / 0.3 s	5'000 cph / 714 ms
	Speed according IPC9850	8'400 cph	4'500 cph
	Changeover time	< 1 minute	< 1 minute
Feeder	Feeder capacity 8 mm tape	240 (200 inline)	180 (120 inline)
	Feeder type	hyQ or CLM, programmable	CLM, programmable
Components	Component size range	01005 - 40x40 mm	0201 - 80x33 mm
	Min. lead pitch	0.3 mm (12 mil)	0.3 mm (12 mil)
	Min. component height	> 0.0 mm	> 0.0 mm
	Max. component height	18 mm (25 mm)	18 mm (25 mm)
Accuracy	Linear encoder resolution	0.04 µm (x,y)	0.2 µm (x,y)
	Rotation axis resolution	0.007°	0.007°
	Placement accuracy (x, y)	51 µm @ 3σ	50 µm @ 3σ
PCB	Min. PCB dimensions	20x20 mm (0.8x0.8")	20x20 mm (0.8x0.8")
	Max. PCB dimensions	600x430 mm (23.6 x 16.9 ")	406x305 mm (16 x 12")
	PCB thickness	0.5 - 3.5 mm (0.02 - 0.13")	0.5 - 3.5 mm (0.02 - 0.13")
	Clearance below PCB	40 mm (1.57")	40 mm (1.57")
Dimensions	Machine footprint	1280x1420 mm (50.4" x 55.9")	880x1090 mm (34.7 x 43")
	Operating floor space	2100x2250 mm (82.6" x 88.6")	1395x1650 mm (55 x 65")

Intuitive Pick-and-Place Software Management Information Software hyQ. Intelligent High Speed Feeder



One of Essemtec's advantages is the ability to adapt our core platforms to build advanced automation solutions for micro system assemblies. The combination of dispensing/jetting fluids and placing miniature components with high z-axis stroke can be expanded to build micro cameras, micro lens assemblies, MEMS sensor packages and so forth. Also, integrated microwave assemblies (IMAs), EMI shields, etc. are easily and automatically built with high repeatability.

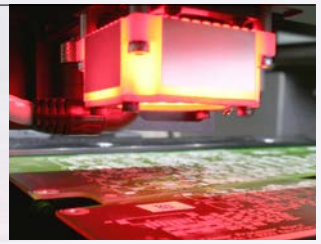
Moreover, 3D over-molded lead frames, which are heavily deployed in automotive solutions, are easily populated using Essemtec's work cell concept.

CVU

Component Verification (CVU)

- Electrical component verification unit
- Measure/Verify diodes and LCR properties
- Verify up to 4 components simultaneously

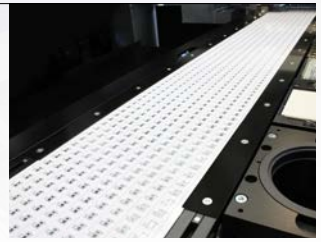
LASER



2.5D High Precision Laser

- Measure surface topology
- Display surface topology on screen
- Dispense 3D patterns
- Place 2.5D (various heights, but coplanar)

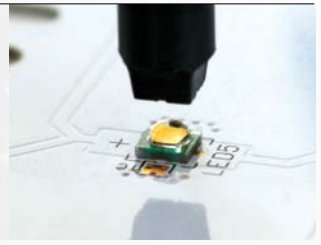
LONG BOARD



Long Board Option

- Board length up to 1200 mm (4 feet)
- Step and repeat placement
- Stencil free with paste jetting

BLOW-OFF



LED Blow-Off Feature

- Controlled blow-off pressure
- Selectable blow-off pressure and time
- Dedicated LED system
  (Long board + LED blow-off)

SUPPORT TABLES

Vacuum, Heat and Lift Tables

- Various tooling options
- Custom made size
- Temperature control of substrates
- Vacuum adaptations

NOZZLES

Nozzles and Nozzle Tips

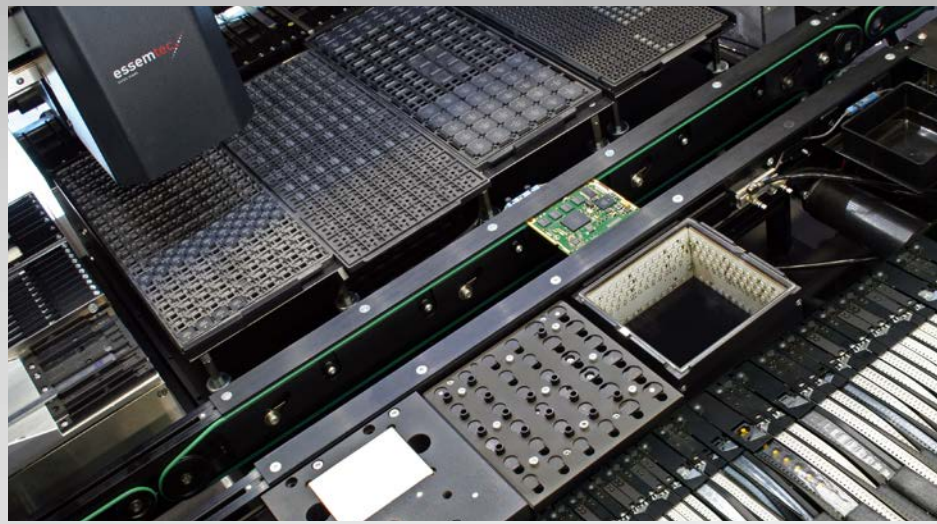
- Wide set of nozzles, adaptors for all
  SPT and Minitron nozzles

FURTHER ENHANCED options.

Essemtec equipment can be further enhanced with a wide range of optional accessories. Essemtec also has the ability to integrate a vast range of feeders to optimize your applications.

COMPATIBILITY CHART	FOX	PARAQUDA	COBRA
Single Lane Feeders	N/A	A	A
Deep Pocket Feeders	A	A	A
Cassette Feeder	A	A	A
Tape Strip Feeder	A	A	A
CLM Stick Feeders	A	A	A
Fixed Tray	A	A	A
Automatic Tray Changer / 18 Trays	N/A	A	A
THT/LED Feeder	A *	A *	A *
Label Feeder	A *	A *	A *
Vibratory Bowl Feeder	A *	A *	A *

A **-** available ***N/A*** **-** not available ***** **-** on request



Automatic Tray Changer

Freely Configurable Feeder Placement

Deep Pocket Feeder

High Speed hyQ_Feeder

Tape Cut-Off Feeder

MEDIUM VOLUME

Printer – Paraquda4 – RO400FC

- Up to 12'000 cph
- Up to 200 feeder lanes
- Component range 01005 to 40x40 mm
- 5 zones reflow soldering

High performance line for midsize volumes and high-mix productions. Product changeovers are extremely fast and simple. Modular expansion of the production capacity is possible.

INTEGRATED WORKCELL

Paraquda-MFC – RO400FC – Cubus

- Up to 12'000 cph
- Up to 100'000 dots/h
- Up to 240 feeder lanes
- Component storage for up to 932 reels

Fully automatic production cell with dispensing, jet printing and pick-and-place in one single machine. Controlled component storage and traceability offer maximum performance.

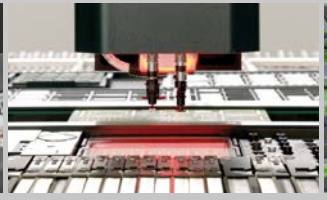
SMT Production Workflow

Component Storage

Feeder Setup

Job Preparation

Dispensing and/or Printing



Pick and Place

Reflow Soldering

SMT PRODUCTION LINES

turnkey solutions.

Fully automatic SMT production lines with stencil or jet printer, pick-and-place, reflow system and board handling. Best performance for high-mix manufacturing. Complete solutions from one supplier.

zonda.

Modular Full Convection Reflow Oven

- 7 to 13 zones
- Speeds up to 140 cm (55") per minute
- Nitrogen option
- Lowest cost of ownership

ro400fc.

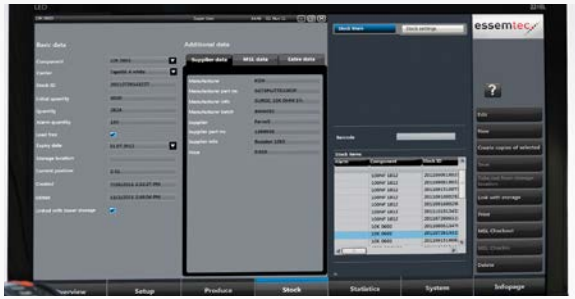
5 Zones Full Convection Reflow Oven

- 4 heating zones and 1 cooling zone
- 400 mm (16") process width
- Soldering or curing
- Chain or belt transport

ro300fc.

4 Zones Full Convection Reflow Oven

- 3 heating zones and 1 cooling zone
- 300 mm (12") process width
- Soldering or curing
- Chain or belt transport



The eMIS Management Software Suite for SMT production includes functions for job planning, feeder setup optimization, stock management, traceability, operational data analysis, line management and much more. With eMIS, managers and operators can keep track of actual, future and past production. Flexible interfaces simplify integration into the existing ERP and MES environment.

- Production simulation and optimization
- Stock management
- Traceability
- Line management

High-Tech Engineering - Made in Switzerland

Essemtec AG is a leading designer, manufacturer and distributor of electronic manufacturing equipment for electronic assembly and semiconductor packaging. We specialize in high speed fluid dispensing equipment as well as flexible high-mix SMT assembly solutions. Essemtec has had the priviledge to serve our loyal customer base since 1991.

More than 5.000 installations in world wide daily use. The brand Essemtec stands for our competences and founded know-how in the field of Surface Mount Technology.

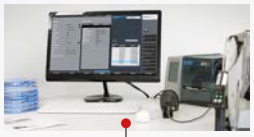
Headquarters:
Essemtec AG, Aesch/LU, Switzerland
Germany:
Essemtec Deutschland AG, Munich
North America:
Essemtec USA LLC, Glasboro NJ

1991
Essemtec is founded in Obfelden Zurich, Market introduction of "fm 201"

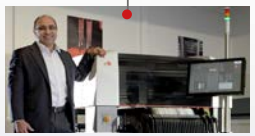
1994
Introduction of Expert line, manual printers and table top reflow ovens

1999
Move to Aesch Lucerne and introduction of first automatic placement machines CLM9000

2003
Start of the very successful FLX platform with over 650 systems sold world wide



2009
Introduction of eez manufacturing software and Paraquda Pick&Place, Construction of second building



2013
Founding family retires; New investors and management are installed, restructuring of business

2014
Introduction of Cubus material storage system, Collaboration with ASM Munich

2016
Essemtec launches the new machine generation Fox and Spider

SWISS MADE PRECISION

company.

The combination of fine engineering in hardware and software and proven swiss quality production enables us to manufacture machines which are widely introduced on the world market today.

Context-Sensitive Help
All machines are based on our eez-technology (essemtec easy) and include online manuals with context-sensitive help. Wherever you are in the user interface, simply touch the help button and the needed explanation pops up.

Hotline Support
Our thoroughly trained hotline engineers are available to answer your questions around the clock and quickly resolve most issues via phone and remote service.

Maintenance
Get a maintenance contract directly after the warranty period ends. Benefit from properly maintained equipment.

Trainings
Dedicated equipment and process training takes place during installation. Follow up training for new employees and brush up courses can be provided at our training centers or directly at your site. Computer-based training courses also are available for self-assessed learning.

Remote Diagnostics
With the customer's permission, our hotline engineers are able to access Essemtec equipment without jeopardizing the safety of the machine or humans around it. Built-in diagnostic tools enable our engineers to find the root cause of an issue and to quickly initiate appropriate action.

Application Support
Our application support can help you to find the right solution for all your problems. We have highly skilled, cross-functional teams in most areas of SMT production. Our solutions may entail process development for jet dispensing or simulating oven profiles for a given substrate load. Furthermore, we do not shy away from hardware modifications, special tooling & automation, customized grippers and nozzles as well as other specialties.

Regional Support and Spare Part Hubs
Local service staff will support you on a daily basis and ensure that necessary spare parts are sent to you as quickly as possible.

- Aesch, Lucerne, Central Switzerland
- Established 1991
- 4300 m² production area
- Subsidiaries in USA and Germany
- Approx 100 employees
- Privately owned

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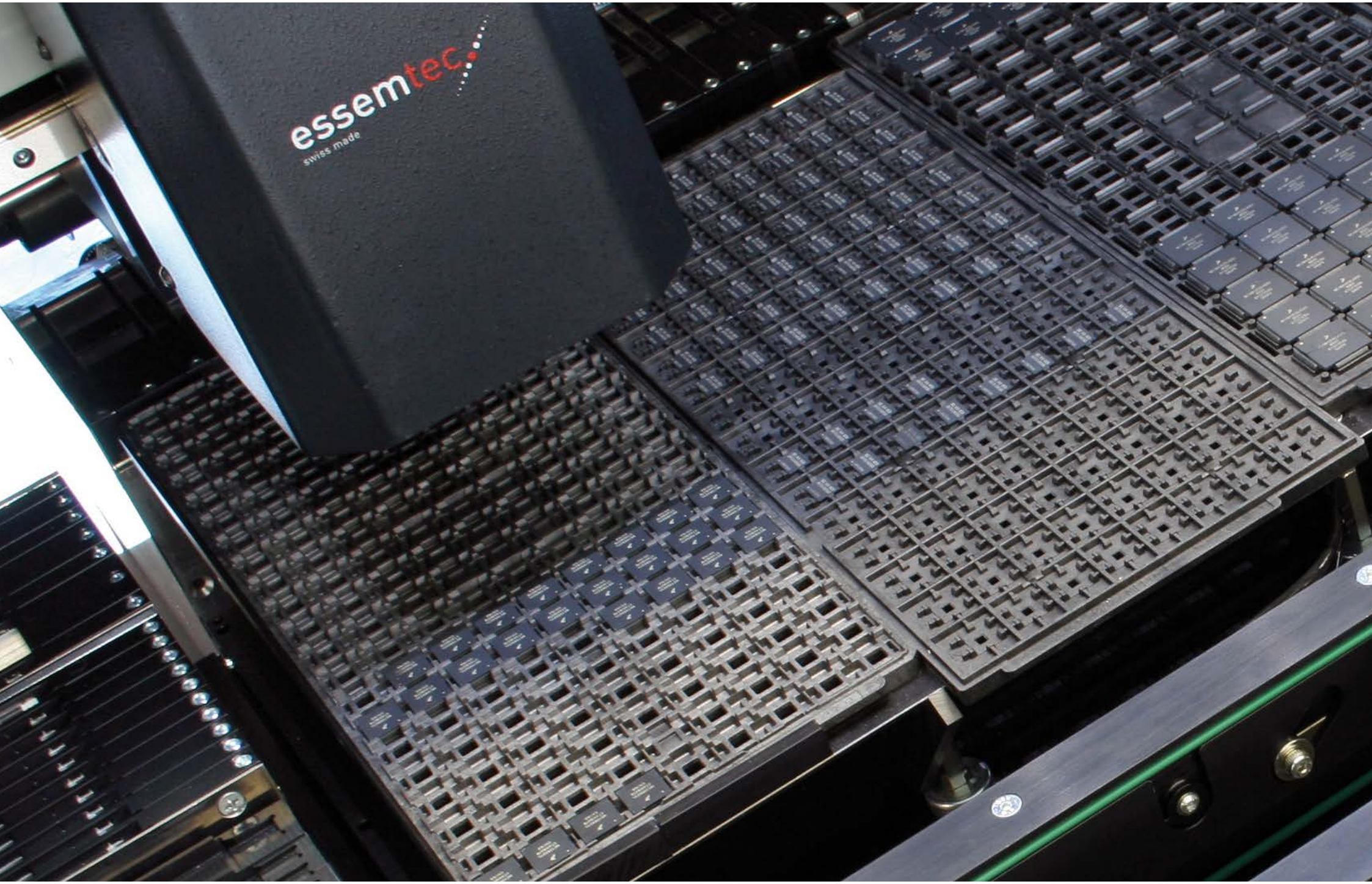
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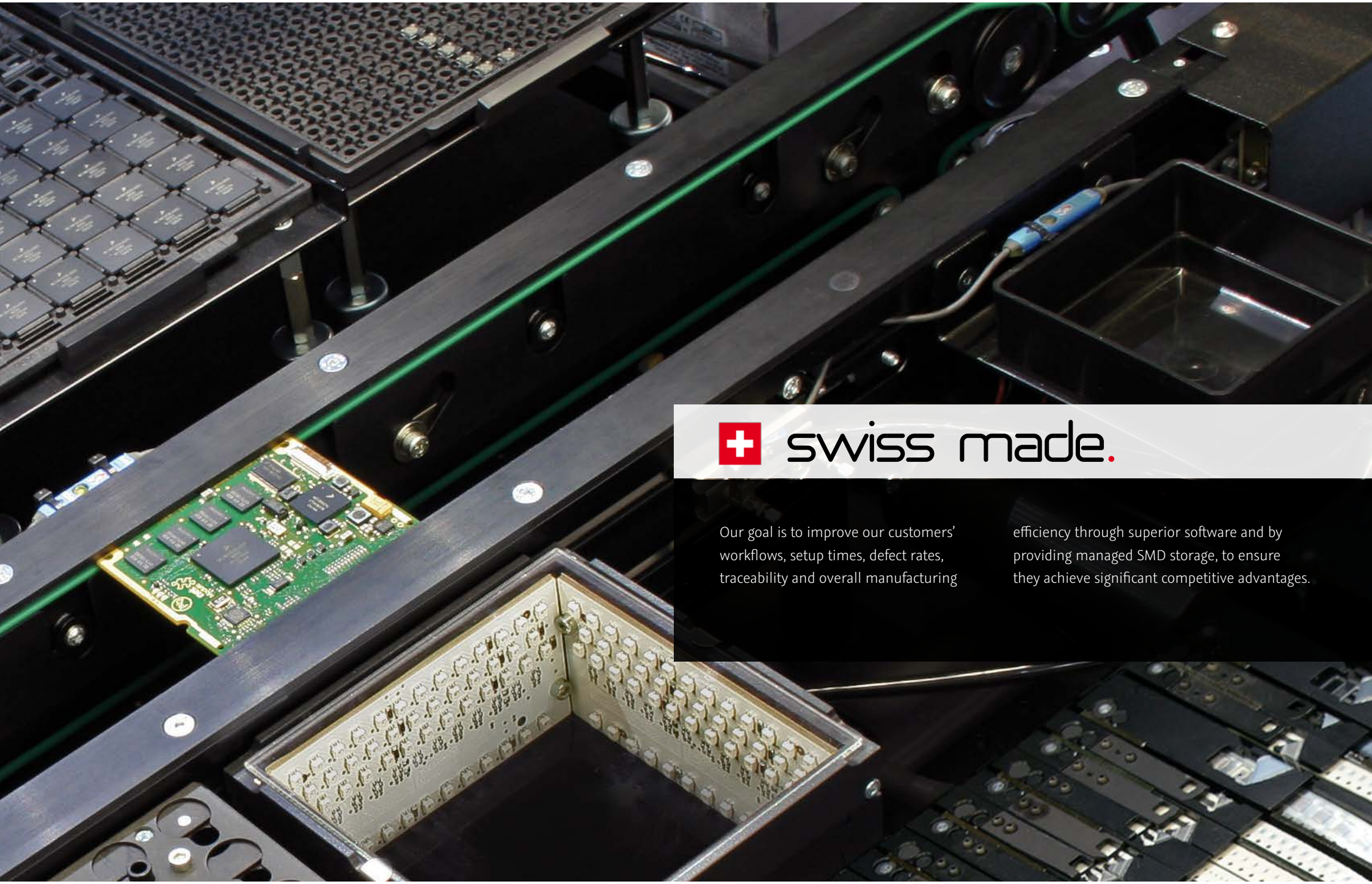

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Our goal is to improve our customers' workflows, setup times, defect rates, traceability and overall manufacturing efficiency through superior software and by providing managed SMD storage, to ensure they achieve significant competitive advantages.

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For a complete list of all representatives and more product information, please visit our Web site at
www.essemtec.com

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