essemtec
A NANODIMENSION DIVISION

fox. ultra.

YOUR SMT PICK AND PLACE SOLUTIONS

puma. ultra.

naturally adaptive.

YOUR SMT PICK AND PLACE SOLUTIONS

Essemtec's Ultra combine speed, precision, and versatility to tackle the challenges of modern SMT production. The Puma Ultra delivers high-performance, high-mix assembly, while the Fox Ultra maximizes efficiency in a compact footprint. Designed to enhance productivity, improve yield, and ensure top-quality results, both machines adapt seamlessly to your evolving manufacturing needs. Our Focus - Your Solution.

combined processes.

- Pick and place, dispensing & inspection
- 1, 2 or 4 axes placement head
- Up to 31‘000 cph Fox – 30‘000 cph Puma

best-in-class feeder density.

- Up to 200 feeder lanes on 1 sqm for Fox
- Up to 280 feeder lanes on 2 sqm for Puma

non stop production.

- “Hot-Swap” feeder changeover
- Off-line recipe preparation

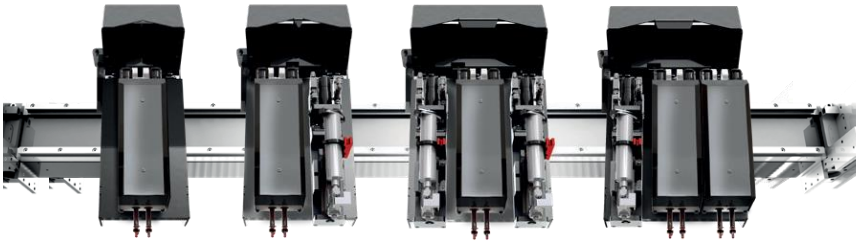
integrated inspection.

- 2D SPI with autocorrect function
- 2D AOI with bad marking & traceability
- Improve yield and quality

solder paste jetting.

- Jet-on-the-Fly with max. 780’000 dph
- BGA pattern 480’000 dph
- PCB average 310’000 dph

CHOOSE YOUR HEAD CONFIGURATION



Select mounting or dispensing head configurations to precisely match your production needs - just optimal performance. Enhance your system later with our upgrade program - expanding capabilities and maintaining peak performance.

NATURALLY ADAPTIVE FEATURES

All-in-One Capabilities

Solder paste jetting, glue jetting, other dispensing, component placement, integrated inspection - 2D SPI & 2D AOI - in one space.

Highest Feeder Density and Compact Size

Up to 200 feeder lanes (140 inline) for Fox in 1 sqm
Up to 280 feeder lanes (160 inline) for Puma in 2 sqm

Dispense Any Medium

Whether it’s paste, glue, silver epoxy, flux, or UV adhesive – dispense it all with accuracy and ease, before mounting components.

Placement Speed

31’000 cph optimum speed with Fox
30’000 cph optimum speed with Puma

Reliable and Repeatable Process

QFP: ± 30 µm at 3σ / Chip: ± 40 µm at 3σ

Extended Component Range & Vision System

Advanced vision system supports the widest component range from 008004 to 109 x 87 mm, ensuring precise and flexible placement.

Connectivity

Easily connect with IPC-CFX, IPC-Hermes, and other standard protocols, with full MES and ERP integration to ensure smart factory connectivity.

Multi-Level Component Placement

Precise dispensing & component placement at different Z-levels, supporting advanced PoP and SoP assembly.

Component Placement in Cavities

Precise dispensing and placement in complex geometries, enabling advanced PCB repair and rework with seamless integration.

Laser Height Mapping

Fully integrated laser height measurements to compensate board warpages and ensure highest process quality.

Versatile PCB Size

From 20 x 20 mm to 406 x 305 mm with Fox and up to 560 x 610 mm with Puma. Long board option enabling PCB`s up to 1’830 mm.

Track Every Component - Manage Every Stock

Complete component traceability and intelligent stock management for optimized production control.

naturally adaptive.

EXTENDED FEEDER SOLUTIONS FOR YOUR NEEDS

EVO and hyQ Feeder

Our high-speed tape feeder for lane 4 to 120 mm, ensure precise, efficient component delivery for fast-paced production.

- EVO Feeder
- Dual Lane
- 4 and 8 mm

- hyQ Feeder
- Single Lane Feeder
- 12, 16, 24, 32, 44, 56, 72 mm
- Extra wide 88, 104 & 120 mm

EVO Strip Feeder

EVO Strip Feeder enables robust handling of short tape strips, ideal for prototyping and NPI, with modular design and easy software.

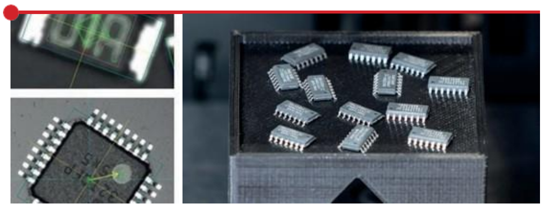
Stick Feeder

The Stick Feeder enables seamless feeding of components supplied in stick format, ensuring efficient handling and placement.

Label Feeder

The Label Feeder enables precise label placement for traceability, ensuring accurate identification and tracking in your SMT production.

Loose Component Solution



Loose Component Solution enables easy picking from a bulk carrier, ideal for prototyping and low quantities, with marking & orientation recognition.

Trays, Tray Slider & Automatic Tray Changer

Trays support BGAs, QFNs, connectors, and custom components, with single trays to automatic tray changer for up to 18 JEDEC trays.

Custom Solution

For custom feeding solutions, contact us! We tailor feeders to your needs, ensuring seamless integration and optimized component handling.

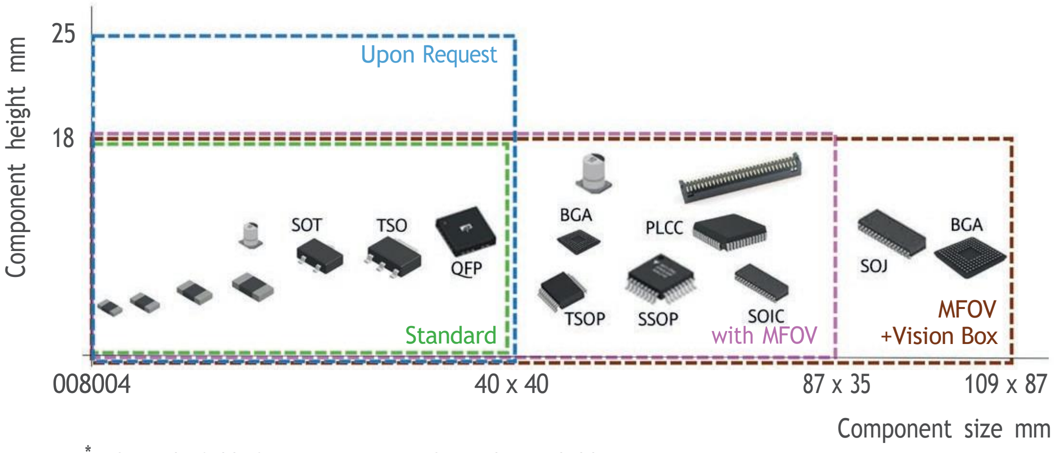
GROW WITH YOUR NEEDS

Fully inline or flexible standalone models.
From single machines to full-line production.
Fox and Puma Ultra grow as your needs do.

naturally adaptive.

COMPONENT RANGE FOR YOUR VERSATILITY

Don't let your equipment limit your possibilities – with Fox Ultra and Puma Ultra, you can pick and place the widest component range in its class, from 008004 chips to 109 x 87 mm parts.



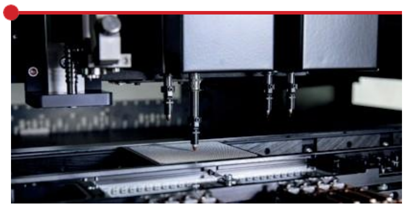
*MFOV: Multi field of view / Vision Box. Optional extended bottom camera.

YOUR FLEXIBILITY WITH ADDITIONAL OPTIONS & CAPABILITIES

Printed Electronics

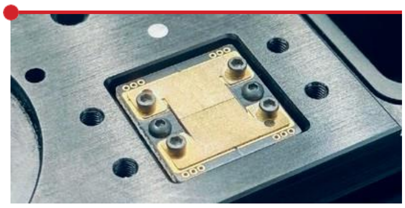
Integrated vacuum table for flexible substrate stability, enabling dispensing and placement on foil.

Reballing, Repair and Rework



All-in-One solution for Reballing, Repair and Rework: automated, accurate, full traceability.

Electrical Testing



Test before placement: Measure & verify resistance, capacity, inductance and polarity to ensure high quality control.

FALCON SOFTWARE SUITE - YOUR SMART FACTORY

Our smart and flexible solutions empower our customers to meet inventory, manufacturing and process challenges with adaptability and ease. Falcon - The standard in advanced, integrated and agile automation. Best-in-class user-friendly software.

Production Flow Optimization

- Reduce cost of inventory
- Optimize component flow
- Reduce machine downtime
- Real-time performance visibility
- Smart Material Management

Quality Improvement

- Production yield increase
- Cost of quality reduction
- Minimize defects
- Traceability for product tracking and quality control

TECHNICAL SPECIFICATION

	fox.^{4}	fox.^{2}	fox.	puma.^{4}	puma.^{2}	puma.
Optimum placement speed	31’000 cph (4-axes)	17’500 cph (2-axes)	9’100 cph (1-axis)	30’000 cph (4-axes)	17’400 cph (2-axes)	9’000 cph (1-axis)
Optimum jetting speed	-	Solder Paste Jetting (dots/h) Max frequency: 780’000 / BGA pattern Jet-on-the-Fly: 480’000 Average board speed: 310’000 Piezo Jetting - Glue (dots/h) Max frequency: 2’000’000 / BGA pattern Jet-on-the-Fly: 780’000 BGA pattern Stop & Jet: 177’000				
Feeder capacity 8 mm tape	200 (140 inline)	180 (120 inline)	180 (120 inline)	280 (160 inline)	260 (140 inline)	260 (140 inline)
Component size range	008004 imp. (0201) up to 109 x 87 mm					
Placement accuracy (x, y)	Chip ± 40 µm (3σ) / QFP ± 30 µm (3σ)					
Max. PCB dimensions	406 x 305 mm (16 x 12”)			560 x 610 mm (22 x 24”) optional 1’830 x 610 mm (72 x 24”)		
Machine footprint	1’027 x 1’117 mm (40 x 44”)			1’557 x 1’357 mm (61 x 53”)		
Approx. machine weight (without / with full feeder)	875 kg (1929 lb) / 1020 kg (2249 lb)			1670 kg (3680 lb) / 1920 kg (4233 lb)		

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