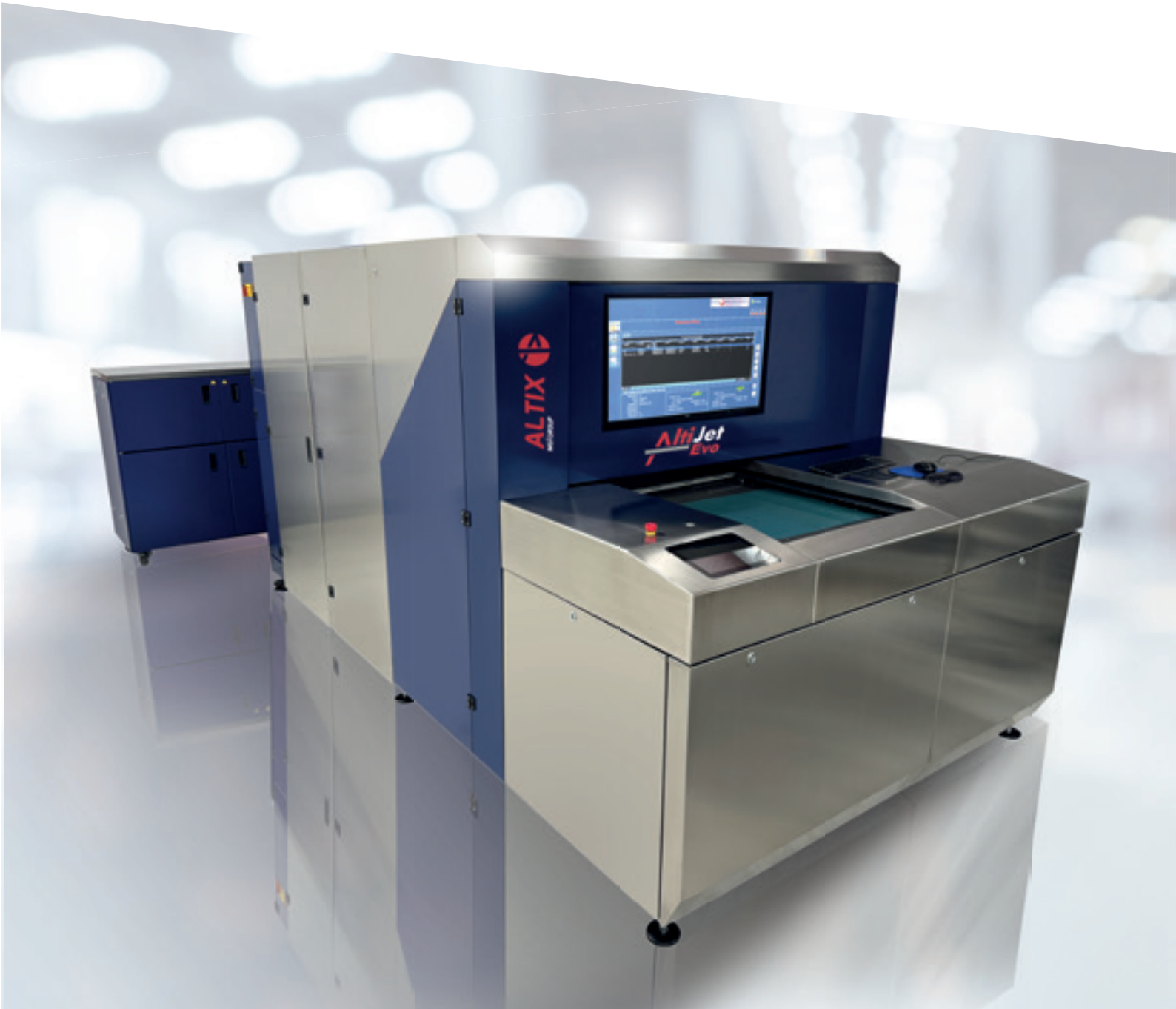
ALTIX MGI GROUP

MGI Digital Technology

AltiJet Evo

SOLDER MASK & LEGEND INKJET PRINTING FOR PCB-FPC



Digital Additive Eco-Friendly Manufacturing Solution
Delivering High Quality and Cost Savings

Innovation In Motion

ALTIX AND MGI GROUP: SHAPING THE FUTURE OF PCB AND FPC MANUFACTURING

Altix, part of the MGI Group — a global leader in digital printing and embellishment technologies — brings decades of imaging expertise to the PCB and FPC industries. Leveraging the Group's innovation power, Altix is transforming manufacturing by replacing complex, resource-intensive workflows with a fully digital additive manufacturing solution that streamlines production, reduces environmental impact, and enhances operational performance.

The Altijet platform uses advanced digital additive manufacturing technology combined with MGI's high-resolution industrial printheads to deposit specialized inks and coatings with exceptional accuracy. This provides PCB, and FPC manufacturers with greater flexibility, access to new market opportunities, and substantial cost savings.

Their joint technology delivers four major advantages to the industry:

Digitalization – High-precision imaging is applied directly onto the substrate, enabling real-time adjustments and complete traceability through serial numbers and data codes.

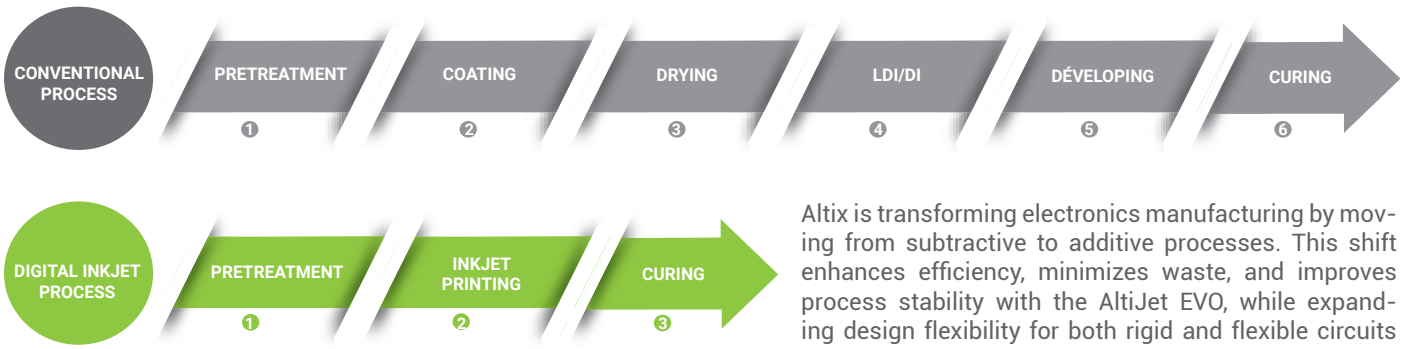
Superior Quality – Legends and solder masks are printed rapidly with automated data alignment, ensuring consistent, repeatable results across different materials and production runs.

Cost Efficiency – By removing screens, UV exposure units, and chemical steps, workflows become leaner, equipment dependency is reduced, and throughput increases.

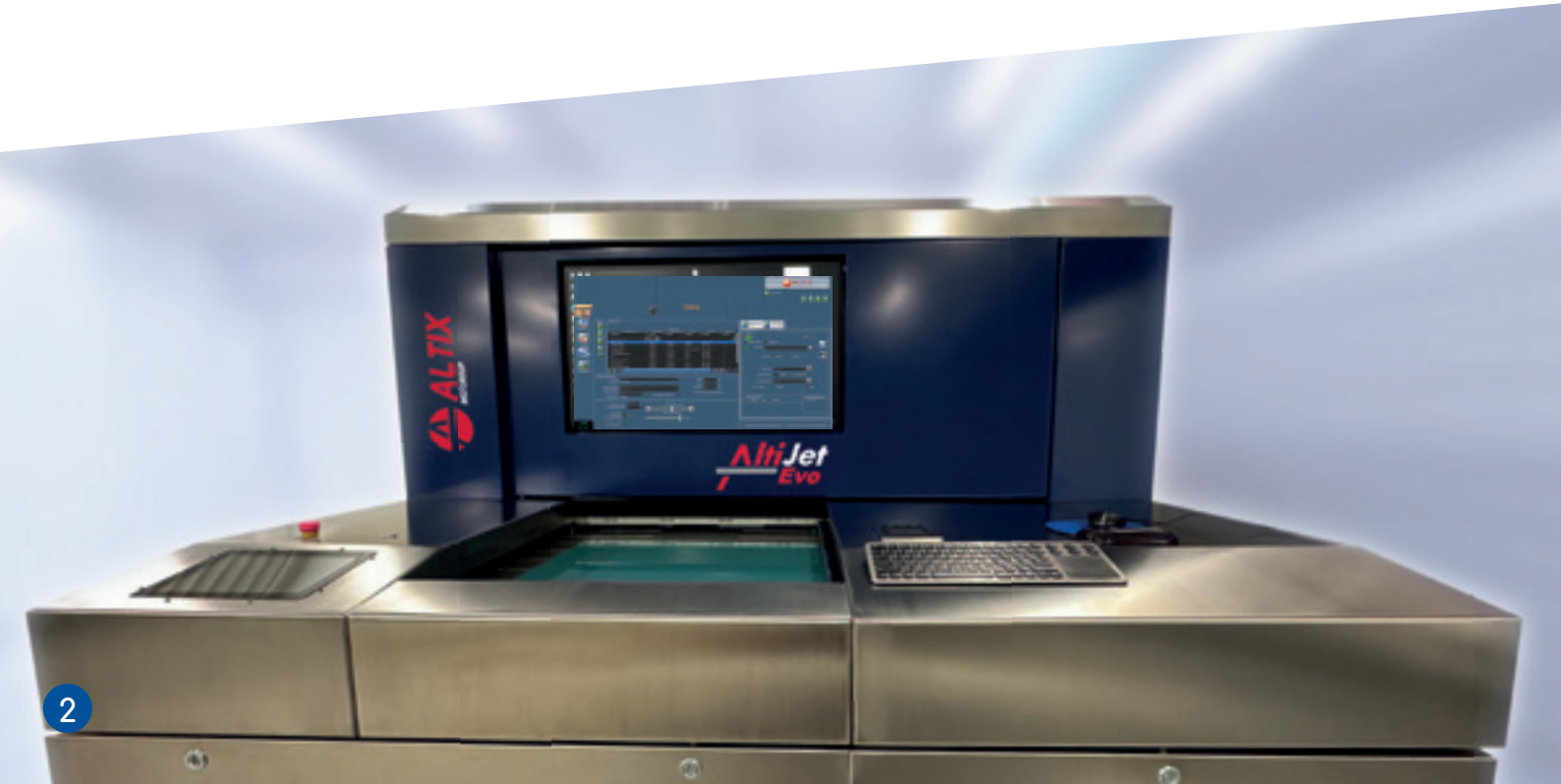
Environmental Responsibility – Solvent-free operation and an automated ink recovery system keep waste below 1%, supporting cleaner and safer production environments.

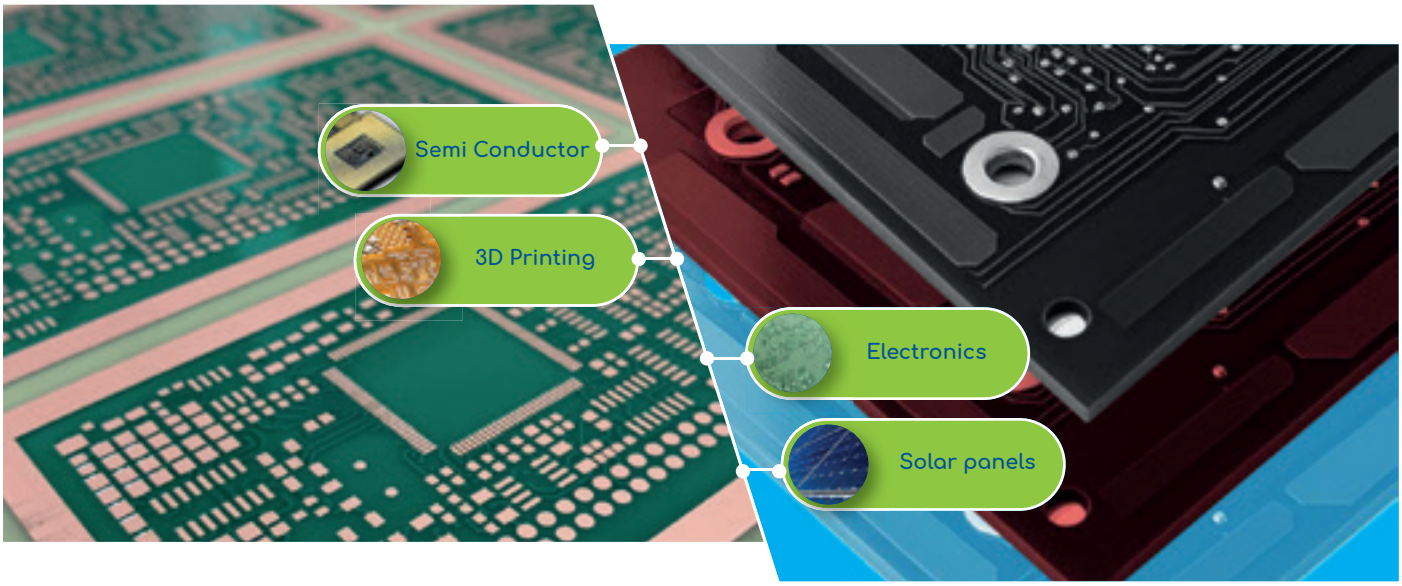
Through this alliance, Altix delivers a sustainable, versatile, and economically sound digital manufacturing solution for PCB and FPC producers worldwide.

Inkjet AltiJet process vs conventional process



Altix is transforming electronics manufacturing by moving from subtractive to additive processes. This shift enhances efficiency, minimizes waste, and improves process stability with the AltiJet EVO, while expanding design flexibility for both rigid and flexible circuits across multiple substrates.





Inkjet for a Greener PCB

Inkjet technology enhances the environmental and operational performance of PCB manufacturing. By applying solder mask only where needed, it reduces material use and waste. UV-curable inks replace solvent-based formulations, eliminating VOC emissions and removing the need for photomasks, screens, and chemical processing. Fewer production steps lower energy consumption and hazardous waste generation.

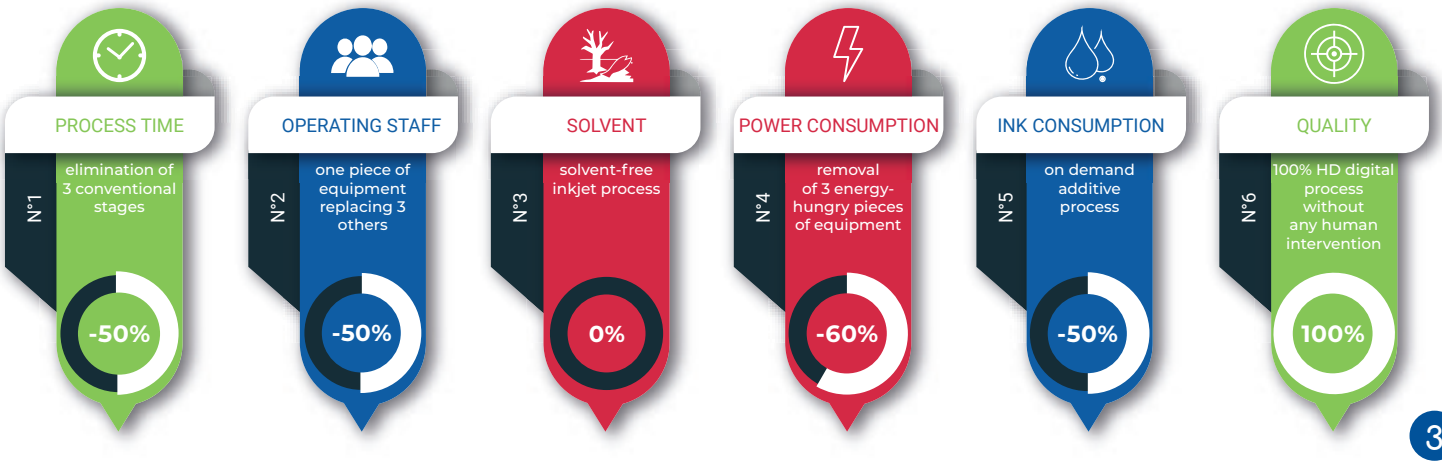
Digital precision improves yield, reduces defects, and minimizes rework. Automated control ensures consistent, stable output without manual intervention, while eliminating chemical developing further cuts water usage. High-definition printing guarantees sharp, repeatable results, reducing carbon footprint, logistics, and overall environmental impact.

Inkjet printing performs effectively in both flexible and high-volume production environments. It supports frequent design changes and small batches while maintaining throughput and reliability for large-scale runs. Direct printing onto the board eliminates masking and curing stages, shortening lead times and accelerating prototyping or mass production.

Its digital workflow allows multiple designs to be printed sequentially without mechanical adjustment, offering exceptional flexibility and customization. Adaptable to unique layouts and specific requirements, it streamlines rapid prototyping and accelerates product development cycles. The result is a cost-efficient, scalable, and sustainable solution for varied PCB manufacturing needs.



The 6 Direct Advantages of Solder Mask Inkjet Printing



INDUSTRIAL INKJET PRINTING



1 - File processing

Real-time conversion of Gerber and GBR X2 files through the AltiJet Evo's integrated RIP engine, ensuring smooth and continuous



2 - 32'' HMI control (job preparation)

Intuitive and ergonomic user interface designed to reduce the number of steps required during production setup and execution on AltiJet Evo.



3 - Printing strategy

Embedded software enabling fast and precise configuration of printing strategies adapted to each panel type..



4 - Granite frame (All-in-One built-in system)

High-density granite structure providing exceptional thermal and mechanical stability, ensuring high accuracy and long-term reliability.



5 - Independent inking station

Industrial inking unit for MGI HD Elite Inks, featuring 18L solder mask tanks and 5L legend ink tanks to maximize machine uptime.



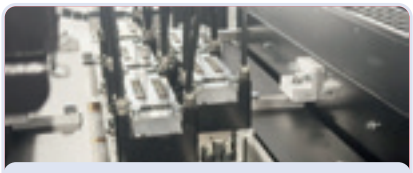
6 - Vacuum table with double clamping

Fast clamping system combining mechanical grippers and vacuum hold-down to guarantee panel flatness and full compatibility with inkjet technology.



7 - 2-camera registration: from 2 to 32 alignment targets

Automatic alignment using high-resolution CCD technology and advanced software to detect and register fiducial marks (2 to 32 points).



8 - One Pass inkjet engine

Full-width MGI inkjet engine with 10 to 18 KM1800i heads, true 1200 dpi resolution, 635 × 812.8 mm (25" × 32") format, printing up to 132 m²/hour.



9 - Scan Pass inkjet engine for Solder Mask

MGI scan-pass inkjet engine with 4 KM1800i heads, true 1200 dpi resolution, for 635 × 812.8 mm (25" × 32") panels.





10 - Scan Pass inkjet engine for Legend Printing

Scan-pass inkjet engine using 4 KM1024 heads, delivering high-contrast legend printing across all panel types.



11- Bi-Direction UV curing

Integrated instant LED-UV curing system, bidirectional, ensuring immediate polymerization at machine output.



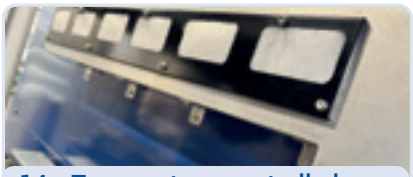
12- Automatic cleaning for SolderMask and Legend

Automatic inkjet head cleaning by mechanical wiping, maximizing AltiJet Evo's operational uptime.



13 - Output quality control via AIS scanner

End-of-line panel inspection using an AI-driven full-width scanner for continuous



14 - Temperature-controlled with overpressure

Air-filtered, temperature-controlled environment ensuring optimal process stability and improved operator comfort.



15 - Predictive maintenance

Altix Connect application providing real-time predictive maintenance dashboards to optimize machine usage.

The 7 steps of AltiJet

01 Board Loading

02 Alignment on 4 marks

03 Scaling and registration

04 Inkjet Printing

05 Hight speed LED UV curing

06 Real time AIS quality control Scanner de-

07 Board unloading



QUALITY & VERSATILITY

All AltiJET models operate in a dust-free, temperature-controlled environment, using a granite platform for mechanical stability and dot precision. This controlled environment ensures perfect soldermask uniformity and repeatable registration over time.

High Mix, Low Volume Production

The AltiJET EVO enables flexible, precise high-mix, low-volume production. Its advanced inkjet technology suits environments with frequent design changes and short runs.
It allows rapid layout modifications without retooling or intermediate steps such as masking or curing.

This digital process handles multiple PCB layouts in one workflow, ensuring smooth transitions between designs.

Combining speed, reliability, and customization, the AltiJET EVO is ideal for prototyping and agile manufacturing. By removing screen-based constraints, it cuts downtime and waste while maintaining quality.

Without extra cost or complexity, it accelerates development cycles and helps manufacturers bring innovations to market faster.

High Volume Production

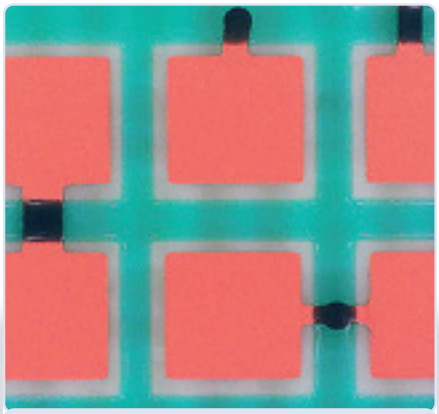
The AltiJET EVO solder mask platform is built for high-volume PCB production, merging automation, precision, and digital adaptability. From early pretreatment through final curing, it delivers stable quality and dependable process performance.

In semi-automatic mode, the AltiJET EVO supports uninterrupted output even with manual loading, relying on advanced AI tools for alignment and inspection. Alongside manual operation, optional versions provide semi-automatic or fully automatic loading and unloading to boost productivity.

Its digital inkjet workflow removes tooling, screens, and masks, allowing fast transitions between identical or mixed panels while cutting setup time and enhancing throughput. MES-compatible, the AltiJET EVO sets a standard for efficient, precise, automated large-scale PCB manufacturing.



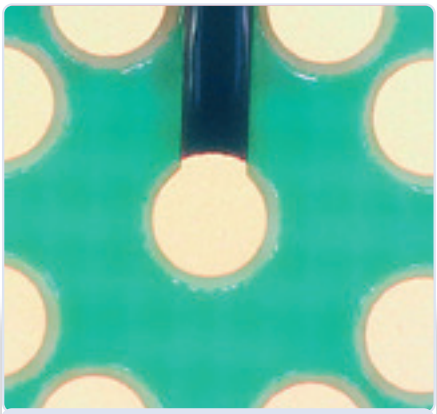




Distinct clearance between the solder mask and copper

DISTINCT INTERFACE
between substrate, copper, and circuit edge

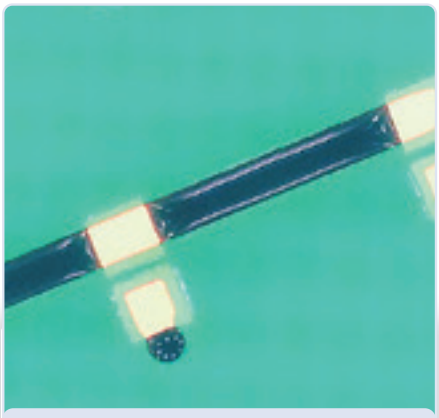
The AltiJET EVO achieves a clean and accurate transition between the substrate, copper layers, and board edges, ensuring a precisely controlled interface zone.



Sharp Solder Mask edge definition, with no bleed

ZERO OVERFLOW
Edge solder mask application

With the AltiJET EVO, solder mask can be applied along the edges with exceptional precision, eliminating any risk of spreading or smearing and maintaining a perfectly neat finish.



Superior registration performance

EDGE PROFILE
Consistent coating quality

The AltiJET EVO delivers finely defined contours and outstanding layer consistency, ensuring a uniform, high-standard appearance across every printed circuit.

UNIQUE SOLUTION
COMBINING MGI ENGINES AND INKS



MGI Industrial Ink Production

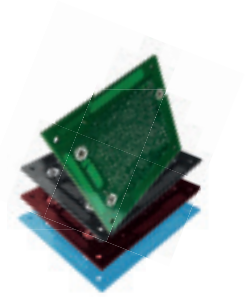
Altijet Evo ensures consistent quality and optimal integration through the exclusive use of MGI HD Elite inks, designed and manufactured in France. Developed in-house, these inks provide perfect compatibility with inkjet printing engines, requiring no user adjustments. Their solvent-free and halogen-free formulation eliminates any risk of flammable emissions, allowing them to operate outside the scope of the ATEX regulations, which are often restrictive in sensitive industrial environments.

The AltiJet Evo precisely controls layer thickness, ensuring uniform coverage and excellent mechanical and chemical resistance. This fine modulation makes it possible to adapt the process to the specific technical requirements of printed circuit board manufacturers, while guaranteeing high-definition printing in full compliance with IPC SM 840 standards. It is particularly well suited for applications requiring high accuracy, such as fine lines, vias and bridges.

MGI HD Elite Inks — available in green, red, black, and blue for solder mask applications, and in white for legend printing — are specifically formulated for optimal performance on AltiJet Evo systems. UV-curable, they provide a safe and efficient alternative to solvent-based inks, while being specifically developed to operate in perfect synergy with MGI inkjet engines. This combination ensures safety, compliance and precision, without the regulatory constraints associated with explosive atmospheres.

A 360° Technical Solution

Propretary Software & Rip → Precision Mechanics → Industrial HD Inkjet Engine → HD Dedicated Free Solvent Inks



Altijet Evo : Customer Software



The Altix software ecosystem provides a comprehensive digital environment to optimize imaging and inkjet processes for PCB manufacturing. The Altix Suite™ HMI offers an intuitive, multi-language interface ensuring smooth CAM connectivity, rapid setup, and compatibility with multiple file types and targets. The Adix Software Package – Basic includes registration and scaling verification, Gerber preview, and manual or partial target detection for high process reliability.

For operational continuity, Altix Telemaintenance enables remote diagnostics, software updates, and system adjustments through secure IP connections, minimizing downtime and improving Mean Time to Repair (MTTR).

The SKATE Starter-Kit Adix Tool simplifies job preparation with ODB++ compatibility, manual target selection, and full integration with Adix Tools.

Altix Connect introduces advanced cloud-based solutions, including Altix Dashboard for real-time monitoring of productivity, availability, and efficiency, and Altix Predict, which anticipates consumable usage and wear-part replacement needs.

Finally, the AltiJet Evo system enhances user ergonomics with a large 32" touchscreen, real-time production control, and effortless interaction, embodying Altix's commitment to smart automation and user-centered design in high-precision electronic imaging.

ALTIX ACADEMY: EXPERTISE DEDICATED TO OUR CLIENTS

Altix Academy is a specialized training and knowledge center dedicated to mastering imaging and inkjet technologies. It provides hands-on and theoretical instruction to optimize process control, improve quality, and ensure safe, efficient implementation at customer sites. Focused on operation, maintenance, and workflow management, the Academy helps reduce variability and maximize equipment performance. Designed for small groups, its programs transfer Altix's technical expertise, empowering users to fully exploit the potential of advanced imaging and inkjet production systems.



TRAINING

Efficient Training: Fast-track your skills with focused, high-impact training sessions.

Expert Instructors: Learn from seasoned professionals who turn knowledge into mastery.

Tailored Sessions: Your goals, your pace—every session shaped just for you.

ON-SITE SUPPORT

Technical Expertise
Proven know-how to optimize your equipment and boost performance.

Preventive Maintenance
Anticipate issues and reduce downtime with proactive care.

On-site Support
Quick expert help, delivered directly to your location.



R&D SUPPORT

Customer-Driven Innovation
We innovate with purpose—guided by real customer needs and market demands.

Field Feedback
Insights from the ground help us refine, adapt, and stay ahead.

Tailored Solutions
Custom-fit technologies designed to match your unique challenges.

APPLICATIONS SUPPORT

Experienced Team
Seasoned professionals with decades of expertise in digital printing and finishing.

Customer-Focused Solutions
Every solution is designed around your needs, ensuring relevance and impact.

Comprehensive Assistance
From setup to support, we're with you every step of the way.

Altix, powering your success

PROPRIETARY SOFTWARE & RIP

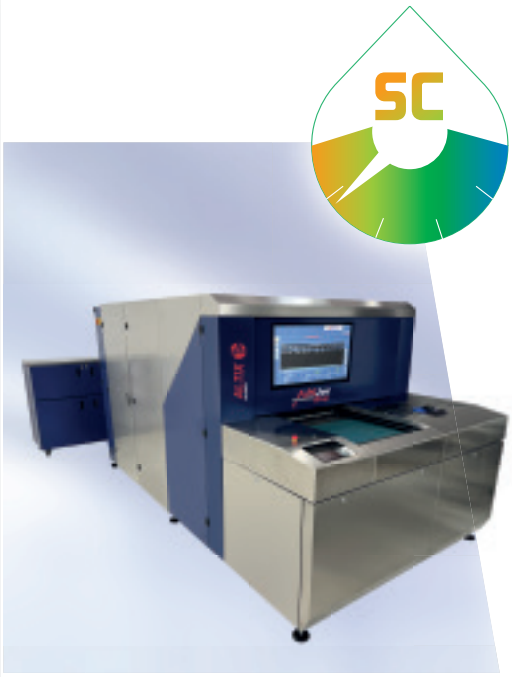
PRECISION MECHANICS

INDUSTRIAL HD INKJET ENGINE

HD DEDICATED FREE SOLVENT INKS



AltiJet Evo SC



SCAN PASS SOLDERMASK + OPTIONAL SCAN PASS SOLDERMASK OR LEGEND

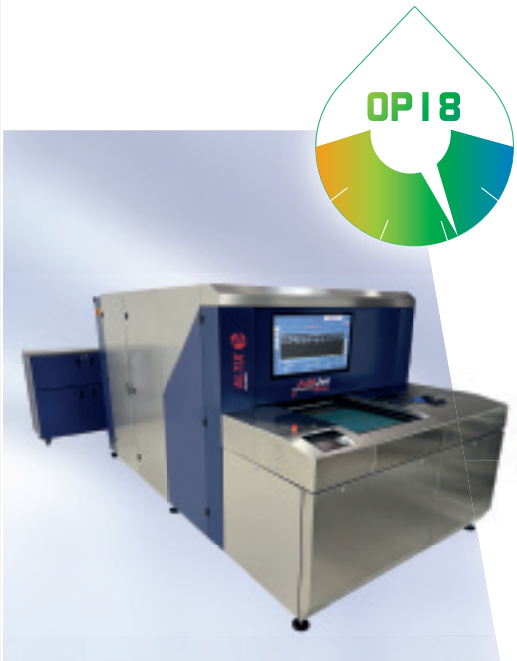
Platform: Granite, air-filtered, temperature-controlled enclosure for optimal stability.
Weight: 6100 kg – Main Unite (Width / Depth / Height :1,993mm / 3,576mm / 2,196mm
Max substrate format: 635 × 812.8 mm (25" × 32")
Min substrate format: 250 × 250 mm (9.8" × 9.8")
Print heads: KM 1800i – True 1200 dpi – 4 heads
Native resolution: 70 µm
Productivity: 18–25 m²/h @ 1200×1200 dpi - 28–35 m²/h @ 1200×600 dpi
Drying Unit: LED UV
Ink station: External (Width / Depth / Height : 1,276mm / 521mm / 1,220mm)
Ink Capacity : 18L -
Available Soldermask colors: 4 (MGI HD Elite Inks)
Inline registration control: 2 cameras, 4 to 32 reference points

Options :
- Second soldermask color in Scan Pass (KM 1800i – 4 heads) OR Scan Pass Legend Printing (KM 1024 - 4 heads) in white ink (MGI HD Elite Inks) with 5l tank
- Inline full width inspection : 1200 dpi CIS scanner
- Semi-Auto or Fully Auto Loading



Legend Color (white).

AltiJet Evo OP18



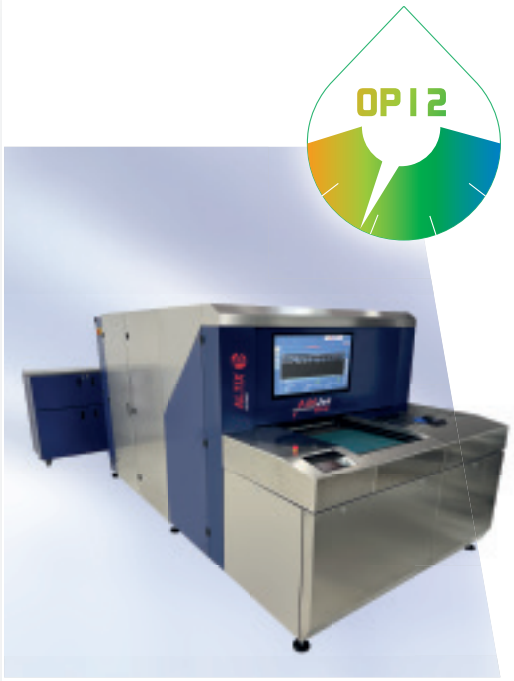
ONE PASS SOLDERMASK + OPTIONAL SCAN PASS SOLDERMASK OR LEGEND

Evolutive: to OP 24 at any moment
Platform: Granite, air-filtered, temperature-controlled enclosure for optimal stability.
Weight: 6500 kg – **Main Unit** (Width / Depth / Height :1,993mm mm/ 3,576mm / 2,196mm
Max substrate format: 515 × 812.8 mm (20,3" × 32")
Min substrate format: 250 × 250 mm (9,8" x 9,8")
Print heads: KM 1800i – True 1200 dpi - 14 heads
Native resolution: 70 µm
Productivity: 109 m2 / hour
Drying Unit: LED UV
Ink station: External (Width / Depth / Height : 1,276mm / 521mm / 1,220mm)
Ink Capacity : 18L -
Available Soldermask colors: 4 (MGI HD Elite Inks)
Inline registration control: 2 cameras, 4 to 32 reference points

Options :
- Second soldermask color in Scan Pass (KM 1800i – 4 heads) OR Scan Pass Legend Printing (KM 1024 - 4 heads) in white ink (MGI HD Elite Inks) with 5l tank
- Inline full width inspection, through 1200 dpi CIS scanner
- Semi-Auto or Fully Auto Loading

A COMPREHENSIVE RANGE

AltiJet Evo OP12



ONE PASS SOLDERMASK + OPTIONAL SCAN PASS SOLDERMASK OR LEGEND

Evolutive: to OP 18 or OP 24 at any moment
Platform: Granite, air-filtered, temperature-controlled enclosure for optimal stability.
Weight: 6500 kg – Main Unit (Width / Depth / Height :1,993mm / 3,576mm / 2,196mm
Max substrate format: 368 × 812.8 mm (14,5" × 32")
Min substrate format: 250 × 250 mm (9,8" x 9,8")
Print heads: KM 1800i – True 1200 dpi - 10 heads
Native resolution: 70 µm
Productivity: 94 m2 / hour
Drying Unit: LED UV
Ink station: External (Width / Depth / Height : 1,276mm / 521mm / 1,220mm)
Ink Capacity : 18L -
Available Soldermask colors: 4 (MGI HD Elite Inks)
Inline registration control: 2 cameras, 4 to 32 reference points

Options :
- Second soldermask color in Scan Pass (KM 1800i – 4 heads) OR Scan Pass Legend Printing (KM 1024 - 4 heads) in white ink (MGI HD Elite Inks) with 5l tank
- Inline full width inspection, through 1200 dpi CIS scanner
- Semi-Auto or Fully Auto Loading

For optimal quality,
the 4 AltiJET Evo use MGI HD Elite inks
exclusively, available
in four soldermask colors
(green, blue, red, and black)
and one legend color (white).

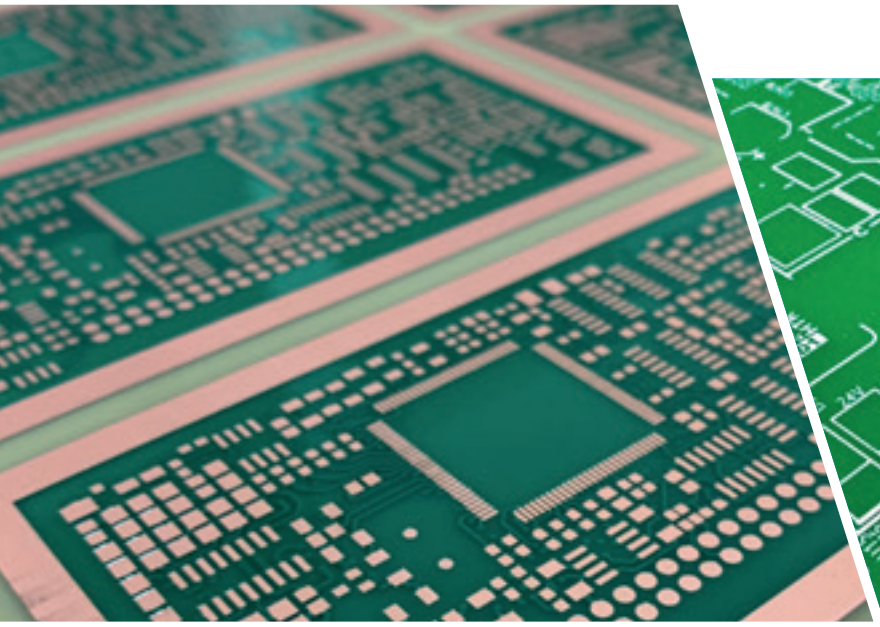
AltiJet Evo OP24

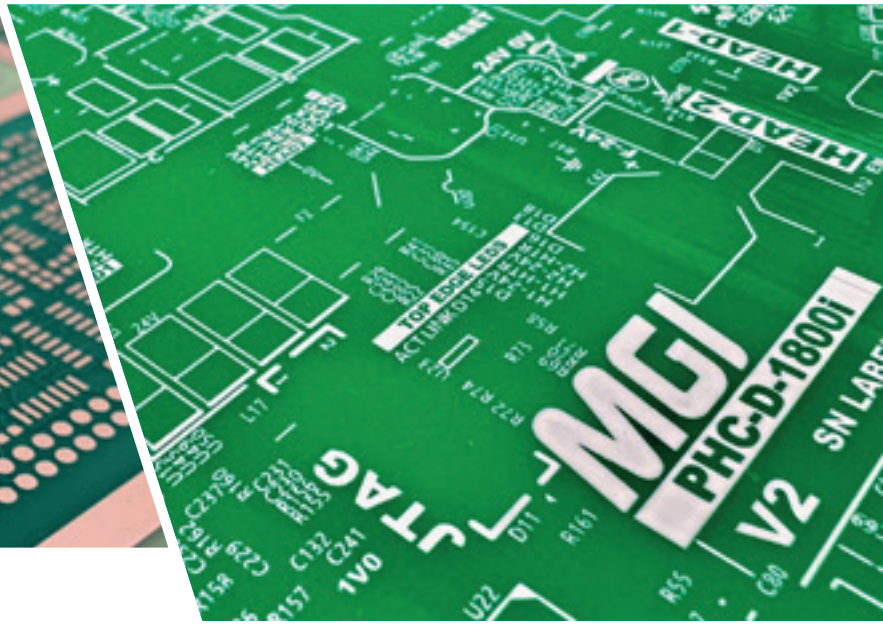


ONE PASS SOLDERMASK + OPTIONAL SCAN PASS SOLDERMASK OR LEGEND

Platform: Granite, air-filtered, temperature-controlled enclosure for optimal stability.
Weight: 6500 kg – **Main Unit** (Width / Depth / Height :1,993mm mm/ 3,576mm / 2,196mm
Max substrate format: 635 × 812.8 mm (25" × 32")
Min substrate format: 250 × 250 mm
Print heads: KM 1800i – True 1200 dpi – 18 heads
Native resolution: 70 µm
Productivity: 132m2 / hour
Drying Unit: LED UV
Ink station: External (Width / Depth / Height : 1,276mm / 521mm / 1,220mm)
Ink Capacity : 18L -
Available Soldermask colors: 4 (MGI HD Elite Inks)
Inline registration control: 2 cameras, 4 to 32 reference points

Options :
- Second soldermask color in Scan Pass (KM 1800i – 4 heads) OR Scan Pass Legend Printing (KM 1024 - 4 heads) in white ink (MGI HD Elite Inks) with 5l tank
- Inline full width inspection, through 1200 dpi CIS scanner
- Semi-Auto or Fully Auto Loading







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