



Capital equipment

The journey of your semiconductor equipment

From dock to fab and the logistics behind it

In the semiconductor industry, precision extends beyond the production line—it's integral to logistics as well. High-value, sensitive manufacturing equipment demands more than conventional shipping methods. Deliver your critical equipment safely, on time, and fully operational using our industry expertise, advanced digital tools, and a globally certified network.

Whether you are an original equipment manufacturer (OEM), foundry, or secondary equipment supplier, minimise risk and build a resilient supply chain from detailed pre-shipment planning to final delivery.

“Are we ready for 180-ton EUV machines? As semiconductor technology evolves, logistics providers and manufacturers must navigate the growing complexity of transporting massive EUV lithography units.”

John Desmond
VP High-Tech and Semicon



Your successful shipment's checklist

When your semiconductor equipment is ready to leave the dock and head to the fab, consider these essential logistics steps:

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- ☒ **Direct routes:** Use optimised, direct transportation routes to minimise handling.
 - ☒ **Specialised trucking carriers:** Rely on experienced freighter aircraft and carriers that specialise in handling sensitive equipment.
 - ☒ **Quality networks:** Partner with approved trucking services equipped with air-ride suspension and temperature control, and work with airlines that prioritise semiconductor shipments.
 - ☒ **Certified staff:** Ensure all personnel are properly trained and certified to handle delicate cargo.
 - ☒ **Digital tracking:** Leverage real-time visibility and communication systems to monitor every step of the journey.



“A supply chain is only as strong as its weakest link. Entrust your fragile semiconductor equipment to a global network that treats your cargo like its own.”

Barry O'Dowd
Global Head of Business
Development for Semicon

Our approach: Precision, expertise, and digital innovation

Our semiconductor logistics solutions are built on three key pillars:

1



A global network
of excellence

2



Innovative
digital tools

3



Reliable air
carrier services



1 SemiconChain: A global network of excellence

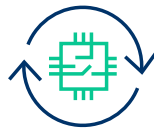
Our SemiconChain is a certified global network of 35 Kuehne+Nagel dedicated stations designed for semiconductor logistics. Every partner in this network is audited and adheres to strict semiconductor protocols, ensuring your high-value shipments are handled safely at every step from the factory floor to final delivery.

What does SemiconChain mean for your shipment?



Streamlined handling

Optimised routes and minimised transfers reduce vibrations and potential damage.



Consistent quality

Each station follows strict semiconductor-specific protocols, guaranteeing uniform care.



Enhanced security

Specialised carriers and air-ride equipment provide the highest level of protection.

Experts you can trust

Before handling your shipment, our specialists complete 13 training modules on semiconductor fundamentals, physical monitoring, and security protocols, plus bi-annual three-day seminars on best practices and advanced tools.

With SemiconChain, you're not just getting a service—you're partnering with a team committed to delivering excellence in every aspect of your semiconductor shipment.



2 Digital tools for proactive planning

Digital innovation is at the core of our logistics strategy—adding an extra layer of reliability, security and visibility to every semiconductor shipment. Before any shipment moves, our integrated digital tools optimise the process to ensure the right freighter selection, proactive risk management, and continuous monitoring for secure, efficient, and reliable delivery.



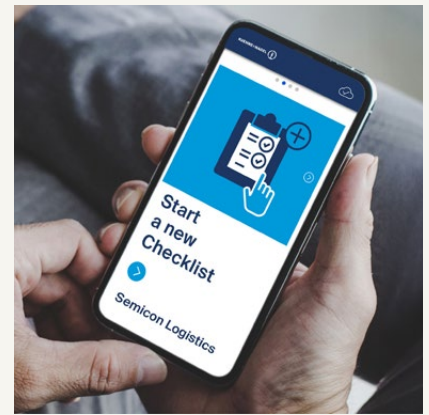
Flight Matrix Generator

optimises flight planning by analysing capacity, selecting the most direct routes, and minimising handling. It allows aircraft type selection, freighter-only options, and airport searches within a defined radius.



Risk Mitigator

conducts detailed lane risk assessments (LRA) to identify critical control points, assess threats, and provide standardised risk scoring, ensuring secure and compliant semiconductor shipments.



Checklist app

replaces paper checklists, enabling seamless handover checks with HD photo uploads, real-time visibility, and reports in 22 languages for improved supply chain management.



3 Reliable air carrier services

Our semicon approved air freight network is a cornerstone of our semiconductor logistics solutions, ensuring secure, efficient, and timely transport of high-value equipment. By also operating our own freighter aircraft, we provide a fully controlled, reliable solution that minimises delays and reduces risks.



Reliable capacity and priority service

In urgent cases, deliver your tools with Kuehne+Nagel's B747-8F "Inspire", which prioritises critical semiconductor shipments and offers quicker transit and on-time delivery.



Global reach and optimised routing

Decrease transit times and enhance efficiency using our weekly charters and around-the-world flights, connecting key semiconductor hubs in the U.S., the Netherlands, and Taiwan.



Reinforced security and supply chain stability

Reduce the risk of damage with fewer transfers and minimise reliance on third-party carriers by using our dedicated air freight capacity.



"Our controlled network gives clients stability in an unpredictable world, ensuring the shipment's journey is as secure as its destination."

Valentina Abplanalp
Global Product Manager Semicon

Case study

Reducing risks in a high-stakes shipment

The challenge

A leading semiconductor OEM needed to ship a multi-million-dollar lithography tool from the U.S. to Taiwan under a strict timeline with zero tolerance for damage.

Our solution

Leveraged SemiconChain

Our team ensured every handling point met our certified standards.

Specialised packaging

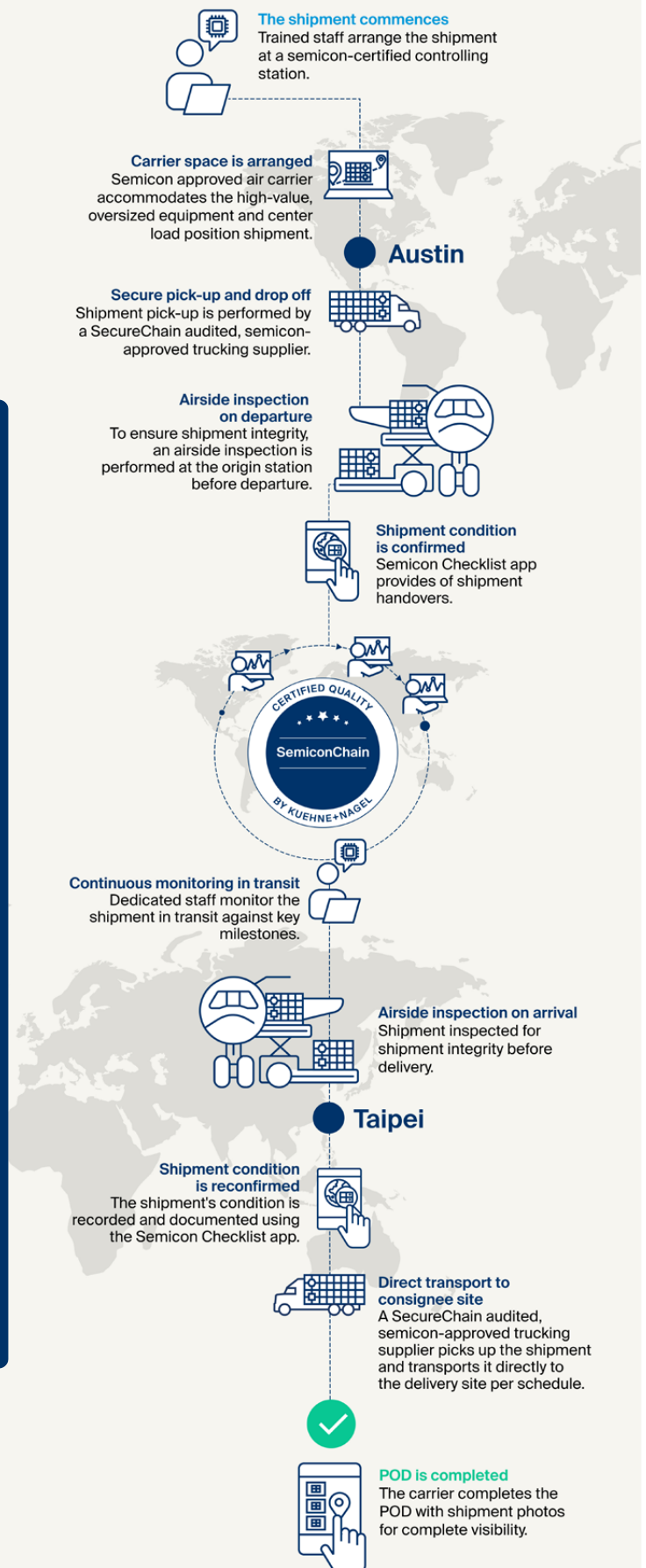
We used vibration-dampening crates designed by our packing specialists.

Real-time monitoring

Integrated GPS and temperature sensors provided continuous updates throughout transit.

The outcome

The lithography tool arrived on schedule and in pristine condition, allowing the OEM to maintain uninterrupted production.



Meet your environmental targets with our sustainable solutions

Our sustainability packages include customised solutions, such as guidance on optimising supply chain practices to reduce waste and innovative carbon tracking tools to provide actionable insights.



Sustainable Aviation Fuel (SAF)

This alternative fuel is made from non-petroleum feedstocks and reduces carbon emissions significantly compared to conventional jet fuel.



Carbon offsets

For unavoidable emissions, we offer programs to help clients balance their environmental footprint.



Common logistics concerns, answered

Q: What happens if the customer isn't ready to receive the tool?

A: Once cleared through customs, the equipment can be safely stored at our certified locations or trusted third-party facilities—often in temperature-regulated, bonded environments tailored to country-specific regulations.

Q: What if the tool is damaged in transit?

A: Damage is exceptionally rare due to our stringent procedures. If a sensor triggers an alert, we immediately follow pre-agreed protocols to secure the shipment and arrange an inspection, ensuring minimal disruption.

Q: How do you handle supply chain disruptions?

A: Our digital tools rapidly identify alternate routes, airports, or transport modes. Our time-critical operations and Intermodal specialists are always on standby to ensure continuity, even in challenging conditions.

Where next?

As the semiconductor industry evolves with rapid technological advancements—including AI innovations—logistics must remain adaptable. Proactive communication and collaboration are essential to anticipate and respond to future changes in semiconductor equipment logistics. By staying informed and flexible, we continuously refine our logistics solutions to meet emerging industry needs.

Let's build your supply chain together.

Semiconductor manufacturing equipment is the backbone of modern innovation. We build quality into every shipment, ensuring your critical assets are transported with the utmost care, precision, and reliability.

About us

With over 80,000 employees at almost 1,300 sites in close to 100 countries, the Kuehne+Nagel Group is one of the world's leading logistics providers. Headquartered in Switzerland, Kuehne+Nagel is listed in the Swiss blue-chip stock market index, the SMI. The Group is the global number one in air and sea logistics and has strong market positions in road and contract logistics.

Kuehne+Nagel is the logistics partner of choice for 400,000 customers worldwide. Using its global network, logistics expertise and data-based insights, the Group provides end-to-end supply chain solutions for global companies and industries. As a member of the Science Based Target Initiative (SBTi), Kuehne+Nagel is committed to sustainable logistics by reducing its own environmental footprint and by supporting its customers with low-carbon logistics solutions.

For more details, visit our semiconductor manufacturing equipment page → [kuehne-nagel.com](https://www.kuehne-nagel.com)