ECLIPSE
AUTOMATION



OVERVIEW

Heavy Transport for Energy

Eclipse Automation designs and integrates heavy transport systems within complete manufacturing environments for energy applications. Each solution improves flow, protects critical components, and delivers reliable performance at scale.

Fixed vs. flexible transport: What fits your operation best?

Energy manufacturing brings a different level of transport complexity. Large, high-value components move through tightly sequenced processes where precision and timing matter. The transport approach needs to align with your payload, layout, and production flow today, and as requirements change.

Fixed, high-load transport (AGV-based)

When production depends on transferring large, heavy components through a defined sequence, automated guided vehicles (AGVs) provide the consistency and control required. Defined routes provide predictable movement, precise alignment, and simpler fleet management.

Best for:	Enables:
• Extremely heavy components • Semi-fixed production paths • High-precision movement • Efficient vehicle energy use	• Predictable flow between stations • Flush-floor integration • Consistent positioning across operations • Reduced fleet management demands

Flexible, adaptive transport (AMR-based)

When layouts shift or production needs change, autonomous mobile robots (AMRs) allow material flow to adapt without major reconfiguration. Fixed paths can limit throughput in these environments.

Best for:	Enables:
• Changing layouts or production lines • Scalable production environments • Distributed assembly cells	• Dynamic routing based on demand • Minimal infrastructure changes • Easy expansion as production needs grow

Not sure which approach fits?

Our team can help you determine the best approach for your production goals.



Built for energy applications that can't slow down

Higher throughput requirements are changing how energy manufacturers approach material flow. Large, high-value components move through tightly sequenced operations where alignment, timing, and handling directly affect performance. Transport has to work in step with the processes around it to keep the line running as expected.

Applications

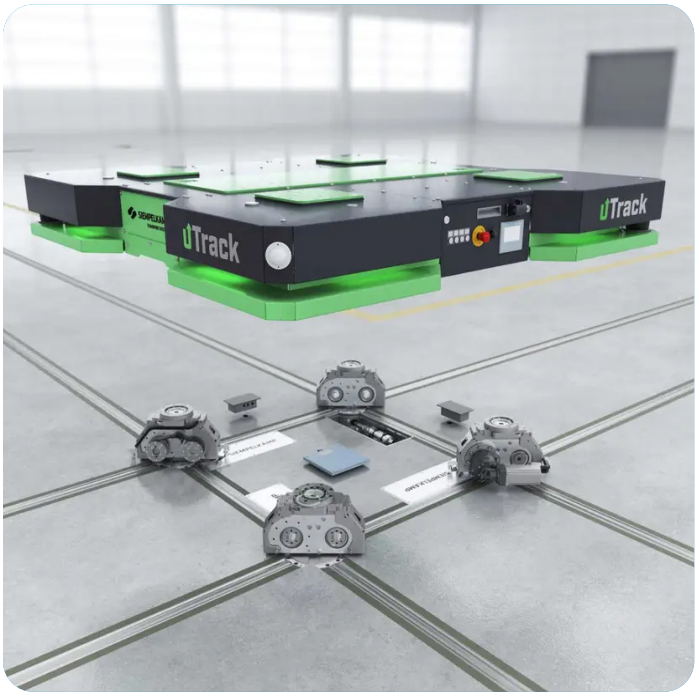
Transport is used across key stages of energy manufacturing, where large components flow between operations.

- Battery energy storage system (BESS) movement
- Transformer handling
- Inverter production
- Solar panel and large component assembly
- Hydrogen fuel cell assembly

Integrated processes

Transport connects directly with the processes that define performance on the line.

- Material handling and system integration
- Precision torquing and fastening
- Vision inspection and quality control
- Bonding, welding, and dispensing



Real-world examples

AGV-based battery assembly transport

Large battery systems move through a fixed sequence of assembly stations where precise positioning is required at every stage. AGV-based transport maintains alignment across each transfer, supporting consistent flow, product quality, and repeatable production performance.

AMR-based material flow for sub-assembly

Sub-assembly environments often change as volumes shift or new variants are introduced. AMR-based transport adapts in real time, routing material between cells without fixed paths to improve flexibility, reduce bottlenecks, and keep operations moving efficiently.



Integrated solutions built for your operation

Eclipse Automation works with leading technology partners to design and integrate the solution that best fits your production requirements.



Siempelkamp (STS)

Siempelkamp builds heavy-duty transport solutions for high-load, fixed-path applications. Their systems are well suited to large components that require controlled, repeatable movement through a defined sequence.



Stäubli

Precision handling and positioning are at the core of Stäubli's robotics and integration technologies. Their solutions fit automated environments where accuracy and consistent performance are critical.



KUKA

KUKA's AMR-based transport brings flexibility to material flow. For operations with changing layouts or volumes, components can be routed where needed without relying on fixed paths.

**We also integrate with other technology partners that are not listed above.*

Let's build your heavy transport system together.

Eclipse Automation helps energy manufacturers move complex materials with less risk. Through our vertically integrated model, we partner with you through every phase of the project, from engineering and integration through launch and long-term support, helping you deliver precision, performance, and production at scale.

Connect with our factory automation experts to get started: https://www.eclipseautomation.com/book-a-discovery-call/



The Eclipse Advantage

Founded in Cambridge in 2001, Eclipse Automation delivers manufacturing automation solutions for clients across the nuclear energy, life sciences, transportation, consumer, industrial, food & beverage, semiconductors, and aerospace & defense sectors.

Our cross-industry experience allows us to adapt proven technologies and best practices from one sector to another, enhancing precision, performance, and reliability for every customer.

With operations across Canada, the U.S., and Europe, we continue to grow our reach and capabilities to meet the evolving needs of all global manufacturers.

Ready to build what's next?

Contact us today to see what's possible:
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