



MANUFACTURO®



A N T A R E S

Confidence in Control:

How Antares Uses Manufacturo to Scale Microreactor Production



EXECUTIVE SNAPSHOT

COMPANY	 A N T A R E S
INDUSTRY	Advanced nuclear energy and defense
CHALLENGE	Establish nuclear-grade quality and traceability from a blank slate, under high-stakes compliance requirements
WHY MANUFACTURO	Unified system for documentation, quality, and production control — scalable for future regulatory and volume changes
HIGHLIGHTS	Deck management, buy-off control, personnel verification, nuclear-grade documentation, integrated quality and production workflows
RESULTS	Full traceability from material to maintenance, compliant quality foundation, scalable backbone for future growth
WHAT'S NEXT	Expand to complex assembly, field traceability, and decades-long lifecycle management

CUSTOMER OVERVIEW

Antares develops adaptable, deployable microreactors for defense, space, and mission-critical infrastructure.

Its advanced heat-pipe thermal management and compact reactor designs promise a new generation of reliable, on-demand energy for remote or harsh environments.

As Antares transitioned from design and testing to its first production cycle, it faced the challenge of establishing nuclear-grade quality and traceability, without legacy systems or historical infrastructure.

THE CHALLENGE:

STARTING FROM ZERO, MEETING NUCLEAR STANDARDS

Producing first-of-a-kind nuclear hardware means meeting standards that exceed most industrial programs: meticulous documentation, decades-long recordkeeping, and evolving compliance requirements.

Antares needed to:

- Control personnel actions and verifications
- Link documentation, NC tracking, and quality into a single, auditable record
- Ensure end-to-end traceability from raw material to reactor maintenance
- Support evolving safety standards without rework
- Scale from prototype production to serial manufacturing

Other MES options targeted high-volume manufacturing, lacking the buy-off, verification, and documentation rigor required for nuclear-grade work.



WHY MANUFACTURO:

ONE PLATFORM FOR QUALITY, CONTROL, AND SCALE

Antares selected Manufacturo for its integrated quality and documentation management, as well as its proven ability to evolve alongside production and regulation.

Key drivers:

- **Integrated quality and documentation (Deck Management):** Control personnel actions and verifications
- **Personnel controls and verifications:** Built-in approval logic for safety-critical steps
- **Unified platform:** Quality, NC, and production in one system — minimal integrations
- **Flexibility for evolving regulation:** Adaptable configurations without system overhauls
- **Scalable backbone:** Ready for transition from R&D to serial production

PARTNERSHIP IN PRACTICE:

IMPLEMENTATION IN STEP WITH PRODUCTION

Antares rolled out Manufacturo alongside its first production cycle, starting with documentation and quality workflows. Integrations were introduced gradually — enabling rapid deployment and a smooth floor experience.

Key milestones:

- First component build (heat-pipe assemblies) completed in early 2024
- Work instructions linked to POs and receiving for auditable traceability
- Floor feedback loop established to improve technician usability
- Platform renewed after first year, confirming long-term confidence

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“Manufacturo has given us a level of control and visibility that’s rare for a company at our stage. We were able to stand up a compliant quality program quickly and evolve it in step with production — without adding unnecessary complexity.”

Douglas Crawford | Head of Quality



FROM REQUIREMENTS TO RESULTS

WHAT ANTARES NEEDED	HOW MANUFACTURO DELIVERED
A compliant quality foundation	Built-in deck management, NC tracking, and documentation in one platform
Personnel and verification controls	Configurable buy-off workflows with role-based restrictions
End-to-end traceability	Linked material, documentation, and production history through each build
Minimal integrations	Deployed standalone, with phased connections to PLM and supply chain
Flexibility for evolving standards	Modular configuration to adapt as nuclear and defense frameworks mature
Controlled scale-up	Gradual process expansion with audit-ready evidence and clean user experience

RESULTS:

CONTROL, COMPLIANCE, AND CONFIDENCE

With Manufacturo, Antares has:

- Established a **nuclear-grade quality system** from day one
- Achieved **full traceability** across design, production, and documentation
- Integrated **buy-offs and personnel controls** for safety-critical actions
- Scaled production **without complexity or risk**
- Built a **long-lifecycle foundation** for decades of recordkeeping

FUTURE OUTLOOK:

SCALING WITH THE MISSION

Antares's partnership with Manufacturo continues as it transitions from early builds to field-ready reactors.

Next steps include:

- Expanding into **complex assembly and quality workflows**
- Extending traceability to **as-built validation and field service**
- Maintaining a **single system of record** for the reactor lifecycle
- Adapting seamlessly to **new safety and compliance frameworks**
- Built a long-lifecycle foundation for decades of recordkeeping



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“Our mission depends on absolute confidence in every component we produce. Manufacturo provides the structure and traceability that let us scale responsibly — ensuring each reactor we deliver meets the standards our customers and regulators expect.”

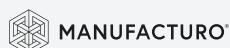
Jordan Bramble | CEO



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“Antares is advancing one of the most important energy innovations of our time. We’re proud to support their team with a platform that gives them the control and confidence they need — from their first components to the reactors that will power the future.”

Zane Shewalter | CXO





MANUFACTURO



A N T A R E S

ABOUT ANTARES

Antares designs and manufactures adaptable microreactors that deliver resilient, deployable power for defense, space, and mission-critical infrastructure. Its R1 reactor combines heat-pipe thermal management, TRISO fuel, and integrated shielding for compact, reliable energy generation in remote or harsh environments. The company collaborates with leading national laboratories and industry partners to accelerate the deployment of next-generation microreactors.

ABOUT MANUFACTURO

Manufacturo is a manufacturing management platform built to unify quality, production, supply chain, and compliance workflows into one system of record. Purpose-built for high-complexity manufacturing, Manufacturo enables faster, safer growth — from early R&D through serial production and decades-long lifecycle traceability.