AEROSPACE NON-DESTRUCTIVE TESTING BUILT AROUND PRODUCTION, QUALITY, AND CONFIDENCE

WHEN AEROSPACE PROGRAMS CANNOT AFFORD UNCERTAINTY, INSPECTION EXPERIENCE MATTERS.

Every aerospace component tells a story long before it enters service. A subtle discontinuity inside a titanium forging. A surface indication hidden beneath a machined finish. Grain flow that does not match design intent. Finding these issues during manufacturing helps prevent costly delays, rework, production disruption, and risk after assembly, qualification, or delivery.

For nearly 60 years, manufacturers have trusted the specialists at Element Middleburg Heights to answer one question with confidence:

IS THIS COMPONENT READY FOR FLIGHT?

Formerly Orbit Industries, our Cleveland-area laboratory has supported aerospace manufacturers since 1965. Today, that proven local expertise is strengthened by Element Materials Technology's global network of laboratories, specialists, and complementary capabilities. Customers gain direct access to experienced Level II and Level III inspectors, responsive support, surge capacity, and consistent resources across locations.

BUILT FOR AEROSPACE MANUFACTURING

Element Middleburg Heights is a 70,000-square-foot aerospace inspection facility equipped to handle everything from small precision hardware to components weighing up to five tons.

Every day, our inspection teams evaluate materials that become some of aviation's most demanding parts, including landing gear, engine structures, forgings, structural hardware, jet engine supports, and complex machined components. This scale helps customers maintain production flow, respond to demand, and prevent inspection bottlenecks.

The laboratory routinely processes:

- Aluminum alloys
- Titanium alloys
- Stainless steels
- Nickel-based alloys
- High-strength alloy steels
- Heat-treated aerospace materials

We also inspect a broad range of product forms, including billets, plates, sheets, bars, rods, tubing, forgings, preforms, and finished machined parts.

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element

MIDDLEBURG HEIGHTS

NON-DESTRUCTIVE TESTING SERVICES

Our inspectors support manufacturers that need repeatable results, dependable turnaround, strict aerospace compliance, and practical guidance that keeps production moving.

ULTRASONIC TESTING (UT)

Internal discontinuities often remain invisible until a component fails. Ultrasonic inspection provides high-resolution evaluation of forgings, billets, plates, bars, and critical structural components without damaging the material.

LIQUID PENETRANT INSPECTION (FPI)

Surface-breaking defects can develop during machining, forming, heat treatment, or finishing. Fluorescent penetrant inspection helps identify these indications before parts move deeper into production.

MAGNETIC PARTICLE INSPECTION (MPI)

Ferromagnetic aerospace components are examined for surface and near-surface discontinuities that could compromise long-term structural integrity.

NITAL ETCH INSPECTION

Verification of grain flow and metallurgical characteristics helps manufacturers confirm processing quality on critical steel components.

CHEMICAL PROCESSING AND PASSIVATION

Nadcap-accredited chemical processing and corrosion-resistant finishing support stainless steel components.

FIELD NDT SERVICES

When inspection cannot come to the laboratory, our technicians bring qualified NDT capabilities directly to customer facilities.

NEW TACTIC™ ULTRASONIC INSPECTION SERVICES

Production schedules rarely slow down because inspection capacity is available.

They slow down because it is not.

TacTic™ expands ultrasonic inspection capacity for aerospace manufacturers seeking higher throughput without compromising inspection quality.

The system is designed to support today's manufacturing environment by helping suppliers:

- Reduce inspection bottlenecks
- Increase production throughput
- Improve turnaround times
- Support surge demand and higher volumes
- Inspect larger and more demanding components
- Maintain repeatable inspection quality across programs

Whether qualifying incoming forgings or supporting production hardware destined for commercial or defense aircraft, TacTic helps inspection keep pace with manufacturing while reducing schedule and supply-chain risk.

ACCREDITED FOR AEROSPACE

Element Middleburg Heights maintains Nadcap accreditation for:

- Ultrasonic Testing
- Liquid Penetrant Inspection
- Magnetic Particle Inspection
- Chemical Processing

Our teams routinely support customer requirements aligned with ASTM, AMS, AWS, ASME, and aerospace prime specifications. Decades of Nadcap experience help customers navigate demanding qualification requirements, avoid preventable compliance issues, and maintain production schedules.

WHY AEROSPACE MANUFACTURERS CHOOSE ELEMENT

Inspection is only valuable when customers can trust the answer and act on it quickly.

Middleburg Heights combines decades of aerospace NDT experience, responsive local service, substantial part-handling capacity, and specialists who understand complex manufacturing challenges. Customers also gain the flexibility to draw on Element's broader network when programs require additional capacity, complementary testing, multi-site support, or expertise beyond a single laboratory.

That connected approach helps manufacturers improve turnaround, manage production surges, reduce supplier complexity, and access materials testing, product qualification, environmental simulation, calibration, failure analysis, and certification support throughout the product lifecycle. The result is stronger continuity, fewer handoffs, and clearer accountability overall.

CONFIDENCE THAT EXTENDS BEYOND INSPECTION

The best inspection partner does more than identify defects. It helps manufacturers avoid delays, reduce production risk, satisfy customer requirements, and keep critical programs moving.

Element Middleburg Heights combines nearly six decades of aerospace NDT experience with the technical depth, capacity, and reach of Element's global network. From raw material qualification through finished flight-critical hardware, we deliver dependable inspection, responsive support, and practical expertise that help aerospace manufacturers make informed decisions with confidence.

Scan here to contact us or request a quote.

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