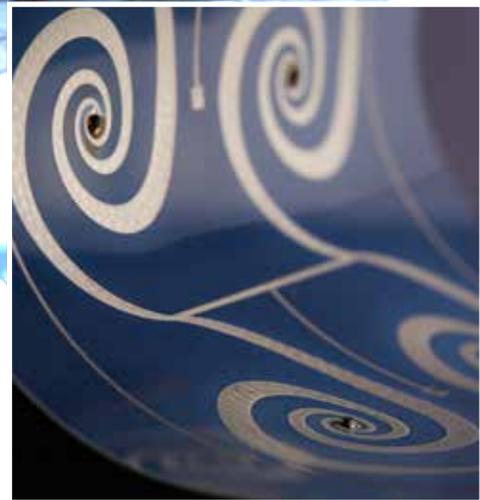
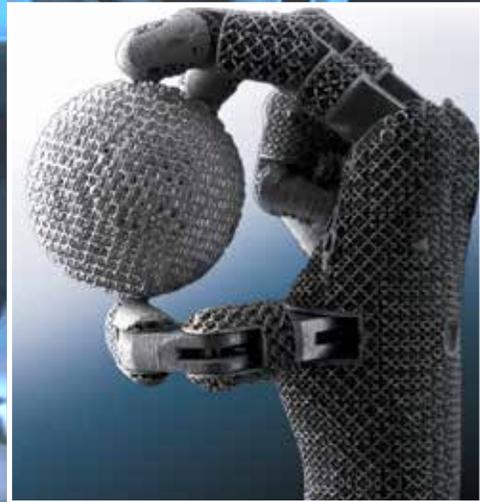


MANUFACTURING DEMONSTRATION FACILITY

A National Resource
for Industry



MDF



Where Innovation Happens

As the nation's premier research laboratory, Oak Ridge National Laboratory is one of the world's most capable resources for transforming the next generation of scientific discovery into solutions for rebuilding and revitalizing America's manufacturing industries. These industries call upon ORNL's expertise in materials synthesis, characterization, and process technology to reduce technical risk and validate investment for innovations targeting products of the future.

The Department of Energy's first Manufacturing Demonstration Facility, established at ORNL, helps industry adopt new manufacturing technologies to reduce life-cycle energy and greenhouse gas emissions, lower production cost, and create new products and opportunities for high-paying jobs.

Collaborating with Industry

Under the **MDF Technology Collaborations User Program**, industry can leverage world-leading capabilities and expertise in focused, short-term collaborative technology assessments on the path to commercial implementation of advanced manufacturing and materials technologies. In all cases the objective is to maximize the return on government investment by achieving the broadest possible dissemination of new technology.

Utilizing Neutron Science for Industry

Reconstructed images of a turbine blade using neutron tomography



Workforce Development & Education

Encouraging the next generation of scientists and engineers, ORNL's MDF introduces next-generation manufacturing to high schools, colleges, and economic-development organizations. Through hands-on training and mentorship programs, ORNL's MDF helps strengthen and grow regional clusters in carbon fiber and advanced manufacturing to create new, high-tech jobs and help small businesses innovate and expand into new markets.



Additive Manufacturing

ORNL is collaborating with equipment manufacturers and end users to advance state-of-the-art technologies and revolutionize the way products are designed and built. Drawing on its close ties with industry and world-leading capabilities in materials development, characterization, and processing, ORNL is creating an unmatched environment for breakthroughs in additive manufacturing.



Carbon Fiber & Composites

ORNL is developing low-cost carbon fiber composite materials for vehicle and industrial applications to improve energy efficiency. An internationally recognized leader in this research and development area, ORNL also operates DOE's unique new carbon fiber technology facility and works with leading companies to overcome commercialization and manufacturing barriers and realize the strength and energy saving benefits of these new materials.

Complementary Manufacturing Research

Lightweight Metals Processing

Encompassing reduction technologies, powder metallurgy, alloy design, and novel processing methodologies

Roll-to-Roll Processing

Enabling products for low-cost flexible electronics, sensors, and energy storage and conversion through high-temperature processing over broad areas of low-temperature substrates

Transient Field Processing

Dramatically enhancing material properties beyond today's limits, including increasing fatigue life and strength and providing stress relief

Low-Temperature Materials Synthesis

Saving energy and processing costs through biosynthesis of unique materials at low temperatures

World-Leading Research Facilities



High Temperature Materials Laboratory

Broad capability for materials characterization, synthesis, and testing



Spallation Neutron Source

World's most powerful accelerator-based neutron source



Carbon Fiber Technology Center

North America's unique and comprehensive carbon fiber development capabilities



Multiprogram Research Facility

Capability to execute national security science and technology projects



Oak Ridge Leadership Computing Facility

World's most powerful open scientific computing facility



Energy Research

Nation's broadest portfolio of energy generation and efficiency programs



Science and Technology Park

Co-locating partners in proximity to ORNL's expertise and innovations



MDF

Manufacturing Demonstration Facility

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