Engineering & Advanced Manufacturing

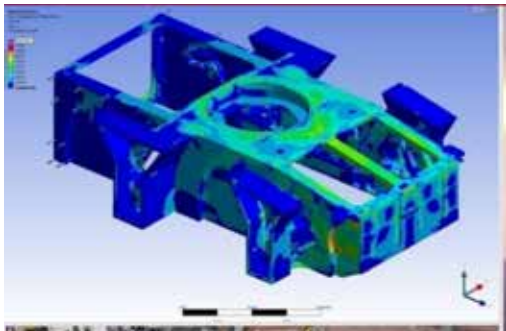
Delivering full-service solutions that combine deep expertise in fundamentals and cutting-edge technologies

Over the past 30+ years, Concurrent Technologies Corporation (CTC) has developed a wide portfolio of advanced engineering and manufacturing expertise. Our engineers, scientific experts, and other team members have adapted to meet the needs of all our clients through the application of traditional and emerging technologies. Our team leverages state-of-the-art equipment, laboratories, and demonstration facilities to deliver innovative, customized, full lifecycle solutions.

CTC's roots are in advanced metalworking technologies, as we operated the Navy Metalworking Center for the U.S. Navy from 1987 to 2017. Our current expertise spans a wide variety of technologies, and our nonprofit status enables us to prioritize the right solution over profit. We work closely with our technology transition affiliate, Enterprise Ventures Corporation, to create a seamless process from concept development to prototyping to production, sustainment, and disposition.

We look forward to applying the technology you need to meet your goals, as we share our vision to make the world safer and more productive.

CTC® *Concurrent Technologies Corporation*



Engineering & Advanced Manufacturing Capabilities

- Engineering Design, Development and Prototyping
- Friction Stir Welding/Advanced Joining
- Additive Manufacturing
- Secure Manufacturing
- Systems Engineering, Design and Integration
- Custom Fabrication
- Next Generation Ammunition
- Mechanical Design and Analysis
- Mechanical Testing and Materials Characterization

Engineering Design, Development and Prototyping

CTC's full-service solutions team consists of engineers and scientific experts with in-depth experience in materials, design, analysis, rapid prototyping, testing, and manufacturing. We integrate these resources at the appropriate phase in the product development life cycle, and employ a first pass design philosophy to minimize design iterations.

Friction Stir Welding/Advanced Joining

Friction Stir Welding (FSW) is a joining process that offers significant advantages over conventional arc welding methods, especially for thick aluminum vehicle structures. FSW utilizes friction between the tool and material to heat (but not melt), soften, and "stir" material across the joint to produce a solid-state weld. CTC has repeatedly proven the superior performance and cost effectiveness of FSW relative to other conventional welding solutions.

Additive Manufacturing

CTC offers a comprehensive suite of additive manufacturing (or 3D printing) services to provide our clients with both complex part manufacturing and the ability to repair worn or damaged high-cost components. CTC uses three additive processes: laser powder bed fusion, hybrid additive manufacturing, and high pressure cold spray.

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Secure Manufacturing

CTC's facilities in Johnstown, PA, have 400,000+ square feet of combined office, laboratory, and high bay demonstration space that meets DoW security requirements. The high bay spaces are routinely used to develop and demonstrate advanced manufacturing technologies, as well as to fabricate large-scale, first-of-a-kind prototype structures.

Systems Engineering, Design and Integration

CTC's systems engineering capabilities begin at concept development, where requirements and architecture are transitioned into well-thought-out system designs based on the trade space. They progress through design, development, production, and sustainment.

Custom Fabrication

CTC provides a wide range of prototyping solutions to meet our clients' specific product and manufacturing needs. Our highly skilled technical staff utilizes the best engineering concepts to address requirements. They develop physical, numerical, and scale manufacturing process prototypes that are evaluated, tested, and refined to meet performance and design objectives. These prototypes are often used in scale-up for low-rate or mass production.

Next Generation Ammunition

Both the Department of War (DoW) and the commercial industry can benefit from CTC's award-winning approach to ammunition. The National Armaments Consortium and the DoW Ordnance Technology Consortium recognized CTC for Outstanding Technical Achievement for its groundbreaking manufacturing process that improves logistics and the end product. CTC is developing and testing prototype ammunition cartridges that increase performance, improve accuracy, reduce weight, reduce manufacturing footprint, and lower the total cost of ownership.

Mechanical Design and Analysis

Our experienced staff use the latest tools and technology to build computer-based engineering models and perform realistic simulations to support product evolution from concept to manufacturing. In addition to simulation-driven product development, analysts are also capable of reverse engineering, failure analysis for fielded components/systems, as well as advanced physics based analyses to solve the most challenging problems.

Mechanical Testing and Materials Characterization

CTC has operated a full service mechanical testing and materials characterization laboratory for over 30 years. Our experienced team has performed quick turnaround testing services for a multitude of government and commercial clients, from small-scale testing to overall test programs for material qualifications.

Environmental Engineering, Design and Development

CTC scientists and engineers deliver high-value solutions to operational and environmental needs through modeling and simulation, reverse engineering, and sustainment support. Our team offers environmental impact minimization, efficient and effective designs, technology validation and transition, process modernization and optimization, and design-to-production methodology. This approach examines the entire process/system lifecycle, from environmental concerns to producibility, not solely the end product. This method is deeply detailed and proven to provide faster, more effective implementation of solutions than the traditional trial-and-error approach.

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Concurrent Technologies Corporation

Concurrent Technologies Corporation (CTC) is an independent, nonprofit, applied scientific research and development professional services organization. CTC collaborates with its technology transition affiliate, Enterprise Ventures Corporation, to leverage research, development, test and evaluation work to provide transformative, full life-cycle solutions. To best serve our clients' needs, we offer the complete ability to fully design, develop, test, prototype, and build. We deliver robust, technical, and innovative solutions that safeguard our national security, retain U.S. technological advantage, and ensure the primacy of American manufacturing.

CTC is a leader in quality and environmental management systems. Visit our Quality Commitment webpage for more information.

Quality Commitment | Concurrent Technologies Corporation (ctc.com)

www.ctc.com

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