



QUAD CITY MANUFACTURING LABORATORY  
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 ROCK ISLAND, IL 61201  
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 309-788-2089



## CAPABILITIES STATEMENT

### Company Overview

QUAD CITY MANUFACTURING LABORATORY (QCML) is a non-profit 501 (c) (3) organization headquartered at Rock Island Arsenal in Rock Island, Illinois. QCML performs research, development, and technology transfer in advanced materials and manufacturing processes using technologies such as 3D metal printing & laser cladding, Spark Plasma Sintering (SPS), Friction Stir Welding (FSW), solid modeling, 3D scanning, robotics, cold spray, and Hot Isostatic Pressing (HIP). Some of the materials that QCML has worked with include: titanium alloys, metal matrix-carbide composites, Inconel alloys, aluminum alloys, magnesium alloys, steel alloys, MgAlB<sub>14</sub> (BAM), silicon carbide, and silicon nitride.

### Functional Areas

- **3D Metal Printing & Laser Cladding (Additive Manufacturing)**
  - *Powder Bed Fusion*- fabrication of prototype, legacy, and complex geometry components
    - *EOSINT M270 Extended Ti DMLS system*- Build volume: 250 mm x 250 mm x 215 mm
  - *Directed Energy Deposition*- repair, feature addition, wear-resistant cladding, and fabrication of components
    - *Modified Optomec LENS 850, 4 axis system*- 3kW fiber laser
    - *Modified Optomec LENS, 3 axis system*- 1kW fiber laser
- **Spark Plasma Sintering**- rapid consolidation of high melting point metal and ceramic powders to near net shapes
  - *Thermal Technologies 10 Ton, 3000 Amp SPS*
  - *Thermal Technologies 25 Ton, 10000 Amp SPS*
- **Friction Stir Welding**- solid state joining of materials
  - *ISTIR CNC 3 axis system*- Weld envelope: 100" x 50" x 17", Material thickness: 0.003" – 0.5" single-sided
- **Solid Modeling and 3D Scanning**-creation of 3D computer models of components
- **Robotics**-process automation, machine vision, end effector design, and intelligent machining
  - *Universal Robots UR-10 and UR-5*
- **Cold Spray Deposition**
- **Process and Equipment Development**
- **Materials and Manufacturing R&D**-microstructural and mechanical analysis of new alloys and processing methods
- **Hot Isostatic Pressing**- consolidation of metal powders to near net shape and microstructural modification of DMLS parts
  - *HIP*- 1200° C, 30 ksi, 8" x 4" hot zone

### Company Demographics

NAICS Codes		DUNS#	CAGE#
332117	332999	828468244	57TK9
541712	332812		
332811	332710		
541380			

### CCR/ORCA Registered

### Companies Client History

- |                               |                                       |                                     |
|-------------------------------|---------------------------------------|-------------------------------------|
| • US Army ARDEC               | • Kondex                              | • Western Illinois University       |
| • JMTC at Rock Island Arsenal | • Oerlikon Metco                      | • South Dakota School of Mines      |
| • US Army Corps of Engineers  | • United Technologies Research Center | • University of Northern Iowa       |
| • Ames Laboratory             | • Lewis Machine & Tool                | • Northern Illinois University      |
| • General Electric            | • J.M. Waller Associates, Inc.        | • Innovative Design & Research Inc. |
| • Lockheed Martin             |                                       |                                     |

### Corporate and Contact Information

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