



## COMPANY

WRW Engineering (WRW), a WBENC certified Bishop-Wisecarver Group company, helps industries integrate mechanical, electrical, and software engineering for custom mechatronics solutions. This holistic approach allows our customers to realize higher production efficiencies, faster time to market, and increased revenues.



## SERVICES & CAPABILITIES

- Engineering solutions and design
- Embedded intelligence systems
- Motion control and automation
- Mechanical, electrical, and software integration
- Design, modeling, and analysis
- Product design and prototyping
- Complete automated and turnkey solutions
- Data acquisition systems
- LabVIEW based programming
- MATLAB modeling and simulation
- FEA—Finite Element Analysis
- GUI (Graphical User Interface) design and development
- Develop detailed user manuals
- Design to UL and CE principles
- Track and monitor deliverables using project management
- Timely and expert technical support (remote, onsite)

## QUALITY & COMPLIANCE

- ISO 9100:2008 / EN 9100:2008 / JISQ 9100:2008 Certified
- AS9100C Certified
- ITAR Registered & Compliant
- Certified Bay Area Green Business



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### TOP NAICS CODES SERVED:

541711—Research/Development in Biotech  
325414—Biological Product Manufacturing  
541712—Research/Development in Physical, Engineering,  
Life Sciences (except Biotechnology)  
339112—Surgical/Medical Instrument Manufacturing  
334519—Other Measuring/Controlling Device Manufacturing  
334510—Electromedical/Electrotherapeutic  
Apparatus Manufacturing

## MAJOR CUSTOMERS

- Raytheon Corporation
- California Department of Public Health (CDPH)
- JDS Uniphase Corporation
- Luminex Corporation
- Maxim Integrated





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## TECHNICAL CAPABILITIES

### ENGINEERING SOLUTIONS AND DESIGN

- Mechanical design
  - Motion systems and actuators
  - Vibration isolation systems
  - Mounting systems and support structures
  - Electronics packaging
- Electrical design
  - Data acquisition systems
  - Controllers
  - Amplifiers
  - Transducers (sensors, motors)
- Integration with customers' systems
  - Inter controller communication
  - Sensor calibration
  - Remote software change and updates
- Integrating mechanical actuators with:
  - Transducers
  - Electronics
  - Software

### SYSTEM INTEGRATION

- Actuators
  - Motors (DC, AC, linear, piezo, stepper)
  - Pneumatic/hydraulic cylinders
- Sensors
  - Position (linear and rotary encoders, resolvers, interferometers, capacitive, inductive)
  - Acceleration (accelerometers, gyros)
  - Velocity (geophones, tachometers, resolvers)
  - Limit switches (inductive, magnetic, mechanical)
- Electronics
  - Controllers
  - HMI - Human machine interface
  - Amplifiers
  - Signal conditioning
  - Data acquisition modules
  - Power supplies
  - Communication components
  - Switches and indicators
  - Wiring and enclosures
- Software
  - User interface
  - Low level control (controller firmware)
  - High level control (Labview, C)
  - interlocks and safety management
  - Monitoring and diagnosis
  - Password protection
  - Real-time Labview measurement and control software development
  - Supervisory control and data acquisition
  - Real-time image processing (machine vision)

### MOTION CONTROL

- Control algorithm development (feedback and feedforward)
- Control system analysis
- Multi-axis motion control
- Customizable motion trajectories
- Servo drive controllers
  - Delta Tau
  - ACS
  - Copley
- Microcontrollers
  - National Instruments
  - ARM
  - Xilinx
- Programmable logic controllers
  - Automation Direct
  - Siemens
  - Allen Bradley

### ENGINEERING ANALYSIS AND MODELING

- System characterization
  - Frequency response analysis
  - Identification of system limitations
- FEA Analysis
  - Mechanical and structural
  - Stress analysis
  - Modal analysis
- Matlab simulation
  - Dynamic system modeling
  - Open and closed loop models
  - Signal processing