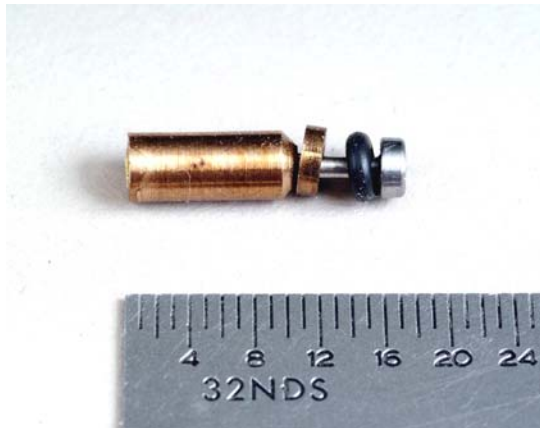


Mechanical Engineering Services

The Mechanical Engineering Group of MSE Technology Applications, Inc. (MSE) has the expertise and background to provide complete engineering services from concept development through final design. Ancillary services include installation support, startup, testing, and closeout of components and complete systems. The group's primary focus is to resolve both process-specific and complete system problems, including the development, design, and implementation of prototypic components or systems for unique applications.



Micro-Bridgman seal designed by MSE and used to seal gases in the Ultrahigh-Pressure Test Facility, which has been tested to 176,000 psi.

ENGINEERING CAPABILITIES

- Project management
- Feasibility studies
- Code compliance surveys
- Project cost estimation and analysis
- Component inspection and analysis
- System/component evaluation
- Conceptual design development
- Prototype development
- Design/fabrication specifications
- Construction package development
- Construction/fabrication management

- Startup, testing, and performance evaluation
- Operation and maintenance development
- Final documentation and closeout management
- Process hazard analysis



Prototype automatic deep lube system.

DETAIL DESIGN

- Industrial process system design and upgrades
- Pump, piping, and tank design
- Industrial exhaust and vapor capture/ventilation systems
- Heat transfer systems
- Component design and modifications
- Fabrication specifications and drawings
- Piping and instrumentation design and diagrams
- Contract bid package development
- Cost estimating and evaluation
- Prototype development, design, and evaluation
- Solid modeling and development
- Structural steel components and analysis
- Equipment inspection and trouble resolution
- Failure surveys and analysis
- Equipment installation and performance evaluations
- Component development for specific applications
- Machine design specialties
- Seismic analysis
- Precision alignment systems
- Hydraulic/pneumatic power systems



Small-scale water treatment system.

FACILITY ENGINEERING

- Existing building retrofits
- Building Code compliance evaluation/upgrades
- Life Safety Code compliance evaluation/upgrades
- Facility layout development and modifications
- Heating, ventilation, and air conditioning modifications
- Construction engineering, management, inspection, and oversight
- Process system modifications
- Equipment installation specifications and drawings
- Damage inspection and analysis
- As-built documentation services
- Operation and maintenance manual development
- Preventive maintenance procedure development
- Waste handling systems development and installation
- Pollution and waste reduction system design and installation
- Spent machining coolant recycling systems development and installation
- Fire protection systems installation bid documentation

STARTUP AND OPERATIONS

- Equipment inspection and installation verification
- Pre-startup and operation inspections
- System commissioning

- Startup and operational oversight
- Operational training
- Preventive maintenance documentation and training
- Standard operating test procedures
- System capacity verification and analysis
- Precision alignment oversight
- System decommissioning



Paint booth volatile organic compound reduction unit.

FOR FURTHER INFORMATION, CONTACT:

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