



## The Combustion Institute

5001 Baum Boulevard, Suite 644

Pittsburgh, Pennsylvania 15213-1851 USA

Ph: (412) 687-1366

Office@CombustionInstitute.org

Fax: (412) 687-0340

CombustionInstitute.org

---

*The Combustion Institute posts job listings for the convenience of our international combustion community. CI does not endorse this job listing or the employer. Please do not contact CI for job-related information. Refer to the full disclaimer at the end of this document.*

## Mechanical Engineer

The **Mechanical Engineer** is responsible for the research and development of Monolith Materials' reactor systems and Core Technology. You will design, fabricate and install new systems for a Pilot reactor located in France. You will lead testing at the Pilot facility and use this data to scale-up designs to commercial scale. You will be responsible for all aspects of design, testing, and analyzing these first-of-a-kind systems.

### Duties and Responsibilities

- Develop new designs of our Core Technology Reactor Systems and expand capabilities of Monolith's carbon black production process:
  - Such systems may include reactor internals, gas mixing systems, water cooled parts subject to extreme temperatures, arc heating systems, and insulation systems.
  - Lead design projects. Set schedules and work independently towards deadlines. Provide timely communication of any significant issues.
  - Prototype parts at machine shops and manage the delivery of small orders as necessary.
  - Engage with stakeholders through the design process and conduct design reviews, FMEA or HAZOP's as appropriate.
- Support testing efforts at Pilot Facility located in France.
  - Document test plans including objectives, strategy, and process conditions.
  - Gather feedback from diverse team, iterate on plans to obtain stakeholder approval and to meet test objectives.
  - Respond to unforeseen circumstances during testing.
  - Analyze data, summarize findings and make recommendations.
- Support thermo-fluid analysis of reactor systems.
  - Apply first-principle models of reactor and build sub models of own designs.
  - Analyze test data to validate models.
  - Utilize models to make recommendations to guide development of Monolith's core technology.
- Manage mechanical design and process documentation for Pilot Facility.
  - Integrate new designs into CAD (SolidWorks) model of Pilot facility.

- Regularly modify CAD models for continuously changing R&D facility.
- Support integration of proven R&D concepts into Monolith's Commercial operations
  - Participate with the engineering team in design of new equipment, Design Reviews, HAZOPS, etc.
  - Identify process-related concerns and communicate needs/priorities to operations and management.
- Performs other duties as needed.

## Essential Requirements

### Education and Experience

- Bachelor's Degree in Mechanical Engineering or a related field
- Minimum 2 years of work experience, or
- An equivalent combination of education and experience to successfully perform the job duties and responsibilities.
- Strong understanding of heat transfer, fluid mechanics, and thermodynamics
- 3D CAD experience and 2D drawing detailing (SolidWorks preferred)
- Proficient in thermal/CFD analysis tools (e.g. SolidWorks Simulation, ANSYS) [desired]
- Knowledge of P&ID diagrams, instrumentation and process design [desired]
- Range of skills necessary to push idea from concept to working prototype. Has personally built, tested, and modified his/her own designs
- Strong hands-on skills with a willingness to troubleshoot equipment and "get dirty"
- Strong oral and written communication
- Ability to multi-task in a fast-paced environment with competing deadlines

Candidate must also demonstrate a high level of safety awareness and conviction. Adherence and commitment to Monolith's SHE philosophy and procedures is a must.

### Work Environment

The majority of the tasks involved with this position are performed in an office with travel to a lab environment.

### Travel Expectations

International travel, up to 25-35%, to Pilot facility in France may be required.

## How to Apply

Online application at [https://monolithmaterials.com/job-postings/?gh\\_jid=4257254002](https://monolithmaterials.com/job-postings/?gh_jid=4257254002)

***The Combustion Institute Disclaimer***

*The Combustion Institute posts job listings for the convenience of our international combustion community. CI does not endorse or recommend employers, and listed job opportunities do not constitute an endorsement or recommendation. CI explicitly makes no representations or guarantees about job listings or the accuracy of the information provided by the employer. CI is not responsible for safety, wages, working conditions, or any other aspect of employment without limitation. Please do not contact CI for job-related information.*