Custom Test Rig & Instrumentation Development
Testing is the best way to validate engineering models and complex physical phenomena. However, test rig development is an expensive and time consuming process which involves design, analysis, fabrication and instrumentation. These steps often require use of valuable resources which could otherwise be used on the main project. At Endeavos Innovations, we have expertise in all aspects of test rig development:

- Hardware selection and development of P&ID (piping & instrumentation diagram).
- Use pre-built, modular Labview data acquisition & control code for quick implementation.
- Advanced FEA & CFD analysis.
- Custom thermo-fluid analysis code to quickly evaluate piping systems including valves, pumps, heat exchanger etc.
- Detailed CAD design and drawings of test rig.
- Machining Facility.
- Facility to house & test small rigs

Please see examples of recent projects
Develop piping and instrumentation diagram in consultation with client. This step involves appropriate instrumentation & hardware selection.
Rigs often require complex pipe flow analysis. We have developed a software tool that allows quick flow and thermal analysis of piping systems including dynamic loads. A simplified version can also be embedded in NI Labview for control design.
Test Rig Design

Detailed CAD design for Machining, Assembly fitment and Advanced FEA & CFD Analysis

Recent Project Examples
**Advanced Analysis**

- Conduct FEA and CFD analysis required during rig development. Here are some examples from recent projects.

- Develop Custom Lumped Parameter System Models
Examples of Data Acquisition and Control Applications Developed at Endeavos Innovations for our clients
We are co-located with AMT (Advanced Manufacturing Techniques). So most of the rig fabrication can be handled easily in one location. We also have contacts with local vendors for piping, valves, rotor systems and miscellaneous hardware.
In-house Testing

We have space to house test rigs of 2’ x 4’ x 4’ volume if needed by clients. All testing and data processing can be conducted at Endeavos Innovations.

Additionally, we have SenTech ovens for testing any material sample within 10” x 12” x 8” volume, Max temp = 1600 °C. Cyclic temperature testing is possible between ambient and preset high temperature. Ideally suited for testing gaskets, seals etc.