

## 1.8 Modular Fixture for Assembly and Welding Applications

**Statement:** A new, modular fixture for holding metal in place during the assembly and welding of cylindrical and conical sections of a pressure vessel or a large structure.

**Problem addressed:** Existing methods required time-consuming design, fabrication, and assembly of expensive, project-specific fixtures, which often required up to six months of lead time and cost millions of dollars to complete.

**Solution and technology description:** The Technology includes multiple modular stanchions having stanchion shafts and stanchion feet that removably attach to apertures in a table. Angle brackets attached to the modular stanchions support shelves. These shelves in turn provide support to work pieces during fabrication processes such as welding.

**Benefits of the product:** Various technology benefits are listed below:

- Modular fixtures can be reused and repurposed for multiple projects of various sizes.
- Tooling design and configuration time is reduced by half.
- Project costs are reduced by as much as an order of magnitude.
- Modular fixtures can enable the economical adoption of friction stir welding.
- Modular fixtures enable large-scale rapid prototype development in a wide range of industries.

**Areas of application:** The technology could be used in many industries including:

- Shipbuilding.
- Airframe assembly.
- Pressure vessel assembly.
- Storage tanks and terminals manufacturing.