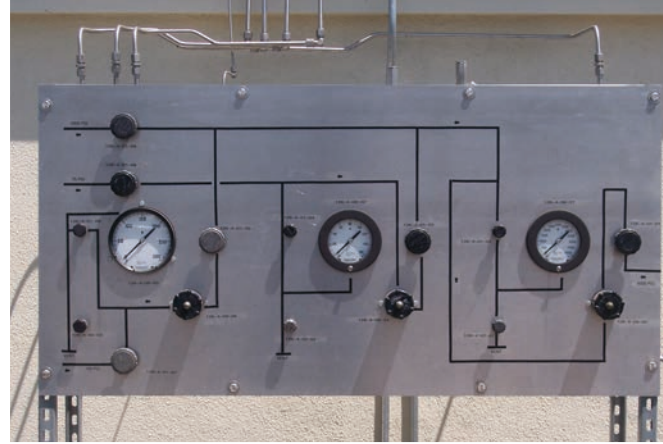




FABRICATION SERVICES



GP Strategies® provides shop fabrication and field installation services for aerospace, process, and manufacturing facilities. GP Strategies' in-house staff of engineers, inspectors, certified welders/braziers, and technicians provide a valuable resource for specialty process systems. System design will provide for the shop fabrication of the majority (or all) of a specific system using verified field dimensions, envelope dimensions, and planned layouts. Where necessary, full-scale mockup panels and subsystems will be fabricated to ensure fit and ergonomic considerations.

Throughout the fabrication process, GP Strategies' certified inspectors (API, ASNT SNT-TC-1A, CWI) will continually monitor quality and specification conformance. In-house equipment and experienced technicians allow pressure testing of subassemblies up to 80,000 psi. Helium leak testing, acoustic emission testing, and traditional nondestructive testing methods are also available in-house to support quality assurance requirements. GP Strategies' capabilities include precision cleaning (shop or field) to meet the strictest system purity requirements.

GP Strategies' work flow and fabrication process has a proven track record for providing complete turn-key systems that meet client specifications and quality assurance requirements without rework. Pending the system requirements, GP Strategies has the proper fabrication process to meet project specifications.

- **High-Purity Precision Systems** - Orbital welded stainless-steel tubing with sanitary connections
- **Low to Medium Pressure (15–6,000 psi) Clean Systems** - 37° flared AN fittings and tubing
- **High-Pressure Systems** - Cone and threaded fittings and components for pressures up to 20,000 psi
- **Cryogenic Delivery and Distribution** - Welded stainless steel with vacuum jacket insulation, or brazed copper with industrial insulation
- **High Flow/High Pressure** - Tungsten Inert Gas (TIG) welded heavy wall pipe and fittings
- **Weld Procedure and Welders Qualified Under ASME Boiler and Pressure Vessel Code, Section IX** - Stainless to stainless, line system ½" to 18", all directions
- **Inspection and Test Personnel, Procedures, and Equipment** - RT, AET, UT-volumetric, UT-thickness, dye penetrant, magnetic particle, and visual examination personnel certified to API and ASNT SNT-TC-1A quality standard





Example Projects:

Liquid Nitrogen Delivery and Test System

Design, fabrication, installation, and certification of a liquid nitrogen delivery system and vat for component testing – More than 300' of cryogenic piping is used to deliver liquid nitrogen to a component test cell. The delivery system includes an automatic vapor vent system to ensure quality liquid at the source. Test cell modifications include the following:

- Installation of a double stainless-steel open vat for “dipping” of pressurized components at cryogenic temperatures
- Oxygen sensor and automatic door control for personnel safety
- Pressurization systems to allow controlled pressurization and venting of components while in the cryogenic tank

Portable Pressure Test/Control Boxes

Fabrication of enclosed blast boxes for the pressure and leak test of spaceflight hardware – Blast boxes include the following:

- Bulletproof glass panels for safe observation of pressurized components (up to 6,000 psi)
- Bulkhead pass-through connections for the pressure supply lines and vents and instrumentation
- Warning light to signify pressurized system
- Integrated flush mount pressure control panels

All process systems were precision cleaned and certified for use on spaceflight hardware.

High-Pressure/High-Purity Test System

Gas booster system to support pressure testing of development and spaceflight hardware – This modification to existing 6,000 psi gaseous nitrogen and helium systems incorporates gas booster pumps and reservoirs to store and deliver test gas at 20,000 psi. The majority of the system, including structural supports and pressure manifolds, are prefabricated, tested, and cleaned at GP Strategies’ facility to minimize downtime at the test facility. The final spools are then delivered, installed, and leak tested at the client site. System features include the following:

- Structural support system for booster pumps and reservoirs
- High-pressure cone and thread tubing manifolds for delivery of 20,000 psi gas
- Flush mount valve panels for control of process fluids
- Pressure test of all systems to 30,000 psi
- Precision-cleaned to oxygen compatibility

Negative Pressure – Helium Recovery System

Orbital-welded, stainless-steel system used for the recovery of spent gaseous helium after leak test of spaceflight hardware – System features include the following:

- 316 stainless-steel construction
- Orbital-welded fittings and sanitary hubs
- Flared AN fittings and tubing at high-pressure connections
- Precision-cleaned and certified to meet spaceflight system requirements

For more information on GP Strategies’ fabrication services:

1.888.843.4784

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www.gpstrategies.com/solution/technical-engineering/engineering-and-fabrication



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