



New Frontiers in Aerospace



Few small aerospace companies possess the technical know-how to build everything from highest-quality mil-spec parts to entire flight vehicles and conduct flight testing regimens worthy of the highest levels of scrutiny. Sage Cheshire Aerospace has a broad range of experience in aerospace from the B2 "stealth bomber" to Red Bull Stratos where a human broke the speed of sound without the use of a vehicle. We invite you to speak with us about your aerospace needs, from one-off parts and tooling to flight testing and high-altitude payload delivery.

Aerospace Design & Manufacturing Capabilities:

- Aircraft or part design & fabrication
- Tooling design & fabrication
- Vacuum-bagged composites
- CNC Nomex and Rohecell core
- Composite pre-preg layup
- Composite wet layup
- Thermo-form press
- Plugs / molds / and master forms
- Metal aircraft holding jig fixtures
- Access door drill jigs
- Aircraft landing gear holding / rigging fixtures
- RF radome fabrication / holding fixtures
- Component testing holding fixtures



Aircraft Parts Manufacturing (Composite and / or Metal Structures)

- Panels, doors, radomes, fuselages, baggage/cargo pods, ribs / stringers / bulkheads, pylons, aircraft skins, engine inlets / nacelles
- Sub-system integration (hydro, electrical, pneumatic, cryogenic and mechanical)
- Complete surface prep & mil-spec paint
- Electrical wire harness and circuit board design and fabrication



Manufacturing Equipment:

- **SolidWorks Pro**
 - Design, modeling , stress / thermo / fluid analysis
- **Rhino CAD, Solid CAM, GeoMagic Design X**
- **Faro Arm**
 - Metrology tool & laser scanner for measurement and reverse engineering
- **White Light Scanner** for modeling surfaces



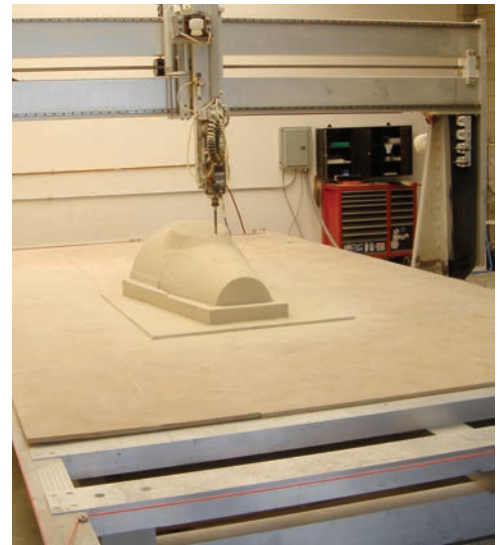
Manufacturing Equipment (continued):

- **OMAX 80160 JetMachining Center**
 - 6" x 72" x 156" cutting capacity (steel, granite, wood, etc)
- **HAAS VF-5XT**
 - Precision milling (0.002 accuracy) up to 60" x 24" x 24"
 - 4-axis guidance
 - Aluminum, titanium, Inconel, etc.
- **Laser CNC Engraver**
 - Material handling up to 3' x 2'
- **3D Printer**
 - Investment casting
 - Prints up to 12" x 12" x 6"
- **5-Axis Hot Wire CNC Mill**
 - EPS & EPP molds / plugs / cores up to 4' x 8' x 16'
- **CNC Gantry Mill**
 - Material handling up to 11' x 21' x 4'
 - 5-axis guidance
- **Metal-Forming Hammers, Presses & Rollers**
- **Mini Altitude Chamber for Electronics Testing**



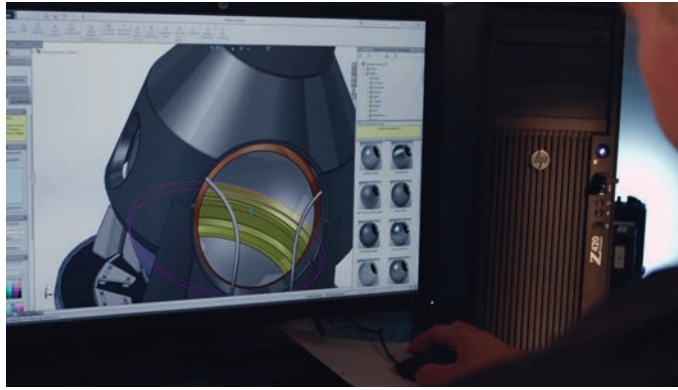
Example Aerospace Projects:

- Tail cone assemblies for G3, G4, G5 aircraft series as well as military aircraft
- G2 aircraft camera pods
- X-37 pod
- Cessna 208 cargo pods
- Radomes for military aircraft
- Protective Parts Devices (PPD) for F22/F35
- Tooling holding fixtures
- Engine exhaust duct tooling fixture
- Aircraft fasteners
- Lynx crew cabin tooling plug
- Liquid oxygen tank tooling plug
- Aircraft flight control surface mounting brackets
- 1/2 scale desktop B2 structures model
- F-16 cockpit fuselage mock-up / flight simulator
- U2 aircraft fuselage mock-up / flight simulator
- Passenger aircraft fuselage comfort mock-up
- Stratospheric capsules/gondolas



Clientele:

- Gulfstream
- Northrop Grumman
- X-COR
- Raytheon
- USAF
- NASA Dryden/Ames
- ICON Aircraft
- Spiral Technology
- Wyle Labs
- Boeing
- Red Bull



Red Bull Stratos: Mission To The Edge Of Space

- Prime contractor for design, fabrication, life support and mission control
- Flight-testing operations, including life support, ground and flight missions

On October 14, 2012, a pressurized capsule lifted by a scientific balloon raised an athlete wearing a custom-made spacesuit over Roswell, New Mexico for a two-and-a-half-hour ascent to 128,000 feet (39 kilometers) into the stratosphere where he would exit and step off into a free-fall from near space. Others had since died trying to break the 52-year old record set by Col. Joseph Kittinger during the pre-astronaut days of 1960. Few people watching that day realized the event was the culmination of a seven-year endeavor including a rigorous flight test program, numerous setbacks and delays that threatened the success of the program.

While the world held its breath, Felix Baumgartner surpassed supersonic speed during his 4 minutes 20 seconds in free fall, becoming the first man to successfully reach MACH 1.25 (traveling over 843.6 mph/1,356 km/hr.) without the use of an aerodynamic vehicle. Sage Cheshire, Inc. assembled the team, designed & fabricated the capsule and its subsystems and designed a special free-fall space suit. Sage Cheshire overcame design, technical and logistical challenges including flight testing and bureaucratic roadblocks at the highest levels of government. Stratos was a very complex project combining aspects of traditional aeronautics and space worthiness which pushed the limits of human physiology and aided in the development of protocol for a safe return from near space. The data generated on this mission is now being used by NASA and others in their efforts to design safer systems for exploring our planet and beyond.

