



FGS Composites

A Company Profile

Where Ideas Become Reality!

FGS Composites, a modern and innovative company from Maryborough, in the Wide Bay part of Queensland, is a leading expert for the development and production of high quality, cost-effective engineered, customised solutions with superior service and on-time delivery.

We offer engineering, analysis, design assistance, process development, tooling fabrication, composite plastics and metal fabrication, assembly and project management.

Our composite solutions make a wide range of applications stronger, lighter and more durable compared to traditional materials.

**We form synergistic relationships
to focus on the best solution for
your project.**



At our modern facility, we are able to develop and manufacture various technologies of high-quality synthetic material components for global markets such as mining, rail and the marine industry.

Personal and competent advice is our first priority at FGS Composites. The ability to respond consistently to individual customer demands makes FGS Composites significantly different from its competitors.

CAPABILITIES



FGS Composites specialises in fibre composites processing and metal fabrication. With over 20 years of industry experience, FGS has adopted innovative manufacturing methods to overcome challenging design, production and maintenance projects. Manufacturing capabilities include:

Mechanical and architectural design concept development – we are experienced in the generation, evaluation and selection of design solutions.

3D CAD design along with FEA and (when required) **2D engineering drawings** using: Solidworks, Inventor and AutoCAD software. This is useful for visualisation, simulation or animation of the design before it is built. It helps you understand and market the design, helps us eliminate errors and is useful for transmitting design data to subcontractors, e.g. CNC machine shops.

Engineering calculations are performed and documented using software which simplifies verification by clients and third parties. Results can be instantly and accurately recalculated when any changes are made.

Finite Element Analysis using FEA to solve a wide range of problems, from simple linear statics to complex nonlinear contact, buckling, dynamics, and heat transfer analyses with simple or sophisticated material models.

Prototype & Production using hand lay up, spray up, vacuum bag consolidation, resin infusion and vacuum assisted resin transfer moulding are just some of our systems used.

Infrastructure/equipment

- ↪ Vacuum pumps for vacuum assisted resin transfer moulding, resin infusion, vacuum bagging, vacuum mixing and vacuum casting
- ↪ Composites fabrication equipment
- ↪ Resin glass depositor, infusion equipment
- ↪ Welding with MIG, TIG and Stick
- ↪ Lathe, Mill, Punch and Shear, NC Press Brake and Guillotine, Horizontal Bandsaw, Drill Press, Pedestal Grinder, Workshop Tools
- ↪ Instrumentation: thermocouples, pressure transducers, load cells, data acquisition card
- ↪ Hardness and toughness measuring machines
- ↪ Access to mechanical, materials and chemical testing laboratories, e.g. Instron load testing machines, MTS fatigue testing machines, Pyrolysis Gas-Chromatography Mass-Spectrometry (Py-GC-MS), Differential Scanning Calorimetry (DSC), thermal gravimetric analysis (TGA) etc.
- ↪ Access to research libraries and online research publications

Software

- ↪ Access to SolidWorks, INVENTOR AND AUTOCAD, Rhino for 3D solid modeling, 2D engineering drawings, animations, visualisation and basic finite element analyses
- ↪ Access to FEA for complex finite element analyses such as nonlinear contact, buckling, dynamics, and heat transfer analyses with simple or sophisticated material models

Processes

- ↪ Contact moulding/hand lamination, vacuum bagging, resin infusion, vacuum assisted resin transfer moulding, pressure moulding
- ↪ Thermoplastic welding

Skills and qualification

- ↪ Staff with Composite Technician Level 3 trade qualifications and above.
- ↪ Staff with qualifications in mechanical engineering

MINING

The corrosion resistance of fibreglass has resulted in extensive use in the mining industry. Saline cooling water and wet gas streams containing hydrogen sulphide at temperatures up to 130° C are corrosive to many materials but GRP offers longevity and strength in these applications. Subsea cooling water intakes and outfall pipelines and diffusers are also manufactured from GRP, which offers longevity in the saltwater environment.

“FGS Composites have completed circulating and cooling water pipe projects in remote locations like Papua New Guinea.”

Newcrest Mining (Lihir, PNG)

Refurbish and replacement of FRP pipelines, scrubbers, grating and other miscellaneous components. Undertaking innovative procedures to maximise time efficiency during short shutdown timeframes. Fabrication of conveyor stacker structural support and conveyor belt tensioners.

Today the company continues to be a market leader in the use of fibreglass for containment, handling and treatment of corrosive industrial chemicals and gases. In order to provide high performance cost competitive solutions to the diverse needs of industry, we draw upon international expertise where required, which complements our internal skills and proven experience. The result is a unique organisation - one capable of the design, production, supply and installation of equipment which handles corrosive and polluting materials for the needs of the mining industry today, and into the future.



MARINE



FGS Composites manufactures and delivers to customers Australia wide a range of specialised, high performance composite solutions. As well as offering a standard range, the company has particular expertise in developing and supplying custom designed solutions for the demanding marine client.

With the marine market being so commercially competitive, cost is a key issue for most marine projects. FGS Composites offer a choice of resins, techniques, systems which can still be reinforced with the various fibres to provide the necessary performance in use, but which can also be cost effectively processed at low pressures out of autoclave (OoA) using lower cost tooling and with less energy.

Australian Navy and Australian Coast Guard – FRP repair and maintenance of vessels. Former defense recognised supplier

Grey Fleet – FRP, Aluminium and stainless steel repairs and modifications on work vessels and superstructure including: interior, cold rooms, engine bay and water systems.

Manufacture of custom small ships and boats.



ARCHITECTURE

At FGS Composites we can create new products as well as assist you with incremental improvements. We offer great products that perform well in a wide variety of architectural designs.

Fibre Reinforced Polymers (FRP) are widely used in the architectural industry because of their design flexibility, high strength-to-weight ratio, non-conductivity, low maintenance, affordability, UV resistance, and flame retardance.

At FGS, our in house custom shop gives us the capability to manufacture original patterns, moulds, and fibreglass components. We can turn ideas into reality. We have far reaching capabilities including CNC routers to create precision wood moulds and more.



Our strengths are inherent in our experience; comprehensive knowledge of composites and our precision capabilities. We will design, manufacture and build to your architectural needs. Our specialised resins are perfect for a wide variety of architectural applications such as domes, cupolas, or other roof structures, cornice and other types of molding or trim, wall coverings, wall panels — to name a few. In addition, we offer pultruded structural components such as decking, walkways or handrails, as well as pultruded shapes such as beams, rods, channel, square tube, rectangular tube and angle.

MASS TRANSPORT

Fibreglass composites are widely used for mass transit vehicle components. FGS Composites produce both interior and exterior parts for new construction and retrofits. Because our capabilities include a range of materials and processes, we can support specific requirements for fire retardancy, electrical conductivity, cosmetics, aerodynamics, durability and weight.



Downer EDI Rail and Bombardier – Static and live simulator manufacturing and installation. Prototyping of train interior and locomotive fronts.

Repair and modification of train passenger car FRP components.

Queensland Rail and Aurizon – Locomotive soundproofing panel design and production.

Futuris – Train passenger seat production and modification

Composite materials give full freedom to engineers to bring their concepts into practice. Large side panels combining constant quality and strength can be made.

With composite profiles it is possible to achieve an optimum combination of large complex shape with thin enough walls for weight saving, excellent surface quality for overall appearance, and adequate fire performance for passenger safety. The thermal insulation properties also give benefits in air conditioning ducts or heating channels.



HEAVY VEHICLE CUSTOMISATION

Offering the full range of materials and processes, FGS Composites can support specific requirements for appearance, aerodynamics, durability and weight. Our involvement in other demanding industries augments the value we bring to heavy vehicle material breakthroughs such as advanced fibre reinforcement and alternate resin technologies that help reduce weight.



Unimog Expedition – Customised vehicle auxiliaries; insulated cabin construction, body and cab modifications

FGS Composites – CAD designed modification plans, custom built living quarters, body and cab modifications, Mercedes Unimog customisation specialist.

FGS Composites is resourced to meet your needs in the areas of quality assurance, JIT delivery and project management. Our design team works closely with customers to achieve product designs that are fully optimised for manufacturability. Rigorous program management during design, tool building, initial part approval and production launch ensures complete synchronisation with your delivery needs.



Ergon Energy – Elevating work platform maintenance and repairs.



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