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## **CAPABILITY STATEMENT - MARINE.**

### **GENERAL INFORMATION.**

Revolution Design is a dedicated group of marine design draftsmen, engineers and naval architects. The company was formed in May 2002 following a restructure of staff at Hobart shipbuilders, Incat. As a working group we have been together for seven years designing a range of wave-piercing catamarans for Hobart based shipbuilder, Incat as well as servicing the needs of other fast ship owners and operators.

### **SERVICES PROVIDED.**

- Design & Analysis of High Speed Vessels
- Structural Engineering of Lightweight Structures
- Vessel Concepts, Economic Analysis & Feasibility Studies
- Marine Drafting
- Full Scale Data Acquisition & Vessel Trials
- Failure Mode Effect Analysis & Risk Assessment for Fast Craft
- Research & Development Management

### **DEPARTMENTS.**

#### **Structures & Design - 4 engineers, 4 design draftspersons.**

- Responsible for interpretation of design requirements, structural design, finite element analysis.
- Design procedures using fatigue analysis to verify a neat, lightweight structure.
- Production of construction plans and hull detail drawings.

Our past collective experience in designing catamarans for Incat has given us intimate knowledge of how to detail to classification and design requirements first up, without need for rework.

Software used - PATRAN & Nastran for FE analysis, AUTOCAD & CADKEY for 2D and 3D drafting.

Typical projects - Incat wave-piercer hull designs including 81, 86, 91, 96, 98 and 112m designs.  
- Retractable T foil in conjunction with Maritime Dynamics Inc.  
- Shore ramps and loading facilities used in fast ferry ports.

#### **Mechanical & Systems - 2 engineers, 3 design draftspersons.**

- Responsible for design of mechanical and electrical systems, propulsion and auxiliary systems.
- Design and detailing of fire suppression and fuel systems.
- Hydraulic design for ride control systems.

Software used - HYENA, AUTOCAD & CADKEY for 2D and 3D drafting.

Typical projects - Hydraulics for retractable T foil.

- Main engine & generator installations in Incat catamarans.
- Waterjet installation on Incat catamarans.

**Naval Architecture, Service and R&D - 2 engineers, 4 naval architects, 3 design draftspersons.**

- Vessel hydrodynamics and hydrostatics for all types of vessels.
- Powering, commissioning trials, hull monitoring systems.
- Vessel feasibility and concept studies for all types of vessels.

Software used - MAST, AUTOPWR, HULLFORM, AUTOCAD & CADKEY 3D for naval architecture.  
- High speed panel code for motions & sea loads prediction.

Typical projects - Trials monitoring of noise & vibration levels.  
- Prediction of sea loads from full scale hull stress data.  
- Real time global fatigue monitoring on an Incat fast ferry.

KEY PERSONNEL.

**Mark Dewey** – Managing Director – 30 years experience in design and production management with Leyland Motor Corporation, Ansair (Division of Ansett Transport Industries) and Incat. Extensive experience in contract management in the commercial vehicle and marine areas.

**Gary Davidson** – B. Eng. (Mech) – Structures & Design - has been responsible for structural design of the Incat Wave Piercing Catamarans built at the Hobart shipbuilding site since 1995. Gary and his design team are responsible for implementing state of the art structural analysis techniques, material property testing, extrusion development for various alloys, composite construction and adhesive applications in the transport industry. Gary has designed and developed unique transport systems including shore and shipside infrastructure.

**Andrew Connolly** – Assoc. Dip. Mech.Eng. – Mechanical & Systems – is the Applications Engineer working closely on developing new arrangements and applications involving Water Jet propulsion, Gearboxes, Main engines and Ride Control Systems.

**Tim Roberts** – B.Eng, M.Eng. Sc. – Naval Architecture and Research & Development - is responsible for research into all facets of high speed ship design and building and the production methods of fast ferries and cargo vessels. Particular areas of research have included tank model testing, computer modelling performance prediction of catamaran hull shapes, fatigue analysis of lightweight structures, full scale monitoring of vessel motions, stresses and sea conditions for the prediction of sea loads.

**George Jackson** – 25 years experience in design and production of interiors and furniture. Responsible for service, interiors and safety of our high speed craft designs in accordance with HSC2000 code.

**Peter Knight** – 35 years experience in hydraulic design and contract management. Responsible for all systems hydraulic design and equipment scheduling and supply for each project.

WEBSITE.

[www.revolutiondesign.com.au](http://www.revolutiondesign.com.au)