

COMMERCIAL SHIPBUILDING AND SERVICES PRESENTATION



Australian Government
Australian Trade Commission



Australia
UNLIMITED



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INNOVATIVE, EFFICIENT AND HIGH QUALITY

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As an island continent, Australia has the sea as its lifeblood, and maritime expertise was developed through necessity.

Today, Australia's maritime industry is renowned for its innovation and flexibility, with the appetite and ability to tackle unique challenges. Australian designs, manufacturing processes and concepts reflect a technologically-advanced and outwardly-focused industry.

Australian commercial marine companies are experienced and offer world-class safety and manufacturing standards. Australian engineers and designers are highly trained and adaptable, and offer innovative solutions to complex problems.

The results of these abilities are vessels that are winning international awards for both quality and effectiveness.

The industry offers leading-edge capabilities from design to manufacturing, supported by in-country fabricators, outfitters and component/systems manufacturers. Combined capability ranges from small

tourism and work boats through to the world's fastest ships. A range of naval vessels are also built in Australian shipyards, from offshore patrol vessels (OPVs), to submarines and several classes of warships.

With capabilities and facilities ranging from product design, shipbuilding, repair and refit yards to marine product, hardware and accessories manufacturing, Australia's marine industry is well placed to service the needs of global marine customers.

There is continuing investment in Australian marine, and a healthy number of designers, shipbuilders, refit and repair yards and equipment suppliers with capabilities to contribute to this growing sector.



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The Australian marine industry is made up of the recreational, commercial and naval sectors.

Australian shipbuilders have an impressive record of efficiency and innovation, with Australian-made ferries, superyachts, patrol boats, fishing boats, and recreational vessels operational worldwide.

Australia's shipbuilding and maintenance, repair and overhaul (MRO) sector is made up of approximately 440 organisations that cater for both the defence and commercial market. With revenue set to grow at 1.7%, the sector is expected to generate \$3.8 billion in revenue during the 2015-16 financial year¹. This is likely to produce \$342.3 million in profits, with exports valued at \$211.6 million². Over the next five years, revenue is forecast to increase at a compound annual rate of 2.2%, to reach \$4.2 billion in 2020-21³.

Australia's commercial marine industry offers diversified capabilities, comprising small, medium and large-sized facilities situated across the country. Factors that contribute to the industry's success include effective quality control systems, excellent through-life support and after-sales support arrangements. The sector's competitive advantage comes from investment in innovation and in research and development, including access to the latest and most efficient technology and manufacturing techniques⁴.

Australian-built vessels are renowned for their sea ferrying capabilities, fuel economy, innovation, ingenuity and workmanship. These capabilities, along with a reputation for providing practical solutions to challenging marine situations, are the hallmarks of Australia's maritime industry.

Australia's long history in shipbuilding and manufacturing of cutting-edge marine products and equipment has generated international recognition for strengths in product design and customisation. Due to growth in niche product segments, there has been

an increase in sector exports as a proportion of industry revenue over the past five years⁵. Demand for Australian-built ships has also increased over this period, primarily because of technology investment in the sector.

Through investment in advanced manufacturing, Australian ships are able to achieve higher speeds due to lightweight aluminium components and other composite materials. Not only are Australian vessels faster, they are more fuel-efficient compared with similar vessels built in several well-established countries. Composites and fibreglass are the key building materials within large (steel-built) naval vessels, while aluminium vessels are most commonly built by Australian commercial companies. Some steel vessels are still built by Australian companies, as illustrated by the Harwood Marine case study.



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The Australian marine industry offers

- product design and development capabilities
- cutting-edge manufacturing technologies
- superior repair and refit facilities
- internationally renowned marine architects and marine consultants
- ship/boat/yacht builders
- manufacturers of a range of marine equipment and accessories.

Australian marine equipment and accessory manufacturers have also gained global recognition for a diverse range of marine hardware, components and accessories, including marine ropes, winches, radars, buoyancy aids, autopilots and dock flotation systems.

There is some cross-over between the recreational and commercial industries, particularly at the higher end of the market, where huge superyachts and luxury vessels are often built for commercial purposes. Fitout and refit expertise, as well as component design and operating systems, are most likely to service both sectors.

Australia has a number of geographically dispersed naval dockyards and defence focused companies, including ASC (South Australia), Austal (Western Australia), Forgacs (New South Wales) and Incat (Tasmania). In addition, some of the world's largest companies are situated in Australia for the purposes of servicing Government naval projects. These include BAE Systems Australia (Victoria) and Thales Australia (New South Wales). Their presence in this country attests to the significant opportunities provided by the Australian Government's multi-billion-dollar build projects.

For many practical reasons, commercial and defence production lines are separated, but several companies, such as Forgacs and Austal, are large enough to service both, and this could herald an emergent trend. Some component suppliers may also have products with both a commercial and military application.

As customer and market needs could vary, potential customers are encouraged to discuss their specific needs with Austrade.

Industry bodies with interest in naval capability include the Australian Industry and Defence Network, Australian Industry Group Defence Council and Defence Teaming Centre.

Talk to your local Austrade representative for more tailored advice and information on connecting and partnering with the Australian commercial marine industry.



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COMMERCIAL VESSELS

Passenger vessels – fast ferries that use less fuel

Among the range of passenger carrying vessels such as ocean liners, cruise ships and yachts, ferries are proving to be very competitive and attractive for short, close to coast trips, between two or more ports. With passenger carrying capacity ranging from 30 - 600, ferries are fast becoming an integral mode of public transport for inter-island and waterside cities around the world.

With innovative flair and the ability to visualise and transform design concepts, Australia has carved out a place as a world leader in aluminium-hulled ferries. Using home-grown workmanship, Australian manufacturers have built a reputation for quality and speed that is second-to-none.

Australian-built and designed fast ferries are head-turning vessels and can be found operating around the world, from Azerbaijan to Japan to Oman.

A number of Australian firms such as Austal, Incat and Strategic Marine are leading ferry manufacturers. By adding new dimensions to their vessels, and continually challenging their capabilities, they consistently meet the needs of discerning international customers.

Australia has the capability to supply a range of ferries and passenger craft of different specifications, sizes and needs (e.g. cruise vessels, passenger

vessels or passenger/vehicle ferries). Australian-built ferries are known for quality, speed, fuel efficiency and durability. Incat Tasmania has the distinction of being the builder of the world's fastest ship (see case study), which is fuelled by LNG and is of super-light construction.

An inherent feature of Australian ferry builders is their ability to interpret and incorporate their customer's requirements, thereby customising vessel design, build and fitout to meet operational needs.



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Work boats – custom builds to suit operational needs

Work boats are essential for various operational needs and often have to be customised to suit specific purposes. Australian commercial shipbuilders have the capability to design, build and outfit a range of work boats, from basic tugs and barges to highly customised vessels. This includes rescue vessels and water ambulance, and patrol and fast support intervention vessels.

Australian work boat builders understand the trying conditions and the essential operational needs that work boats have to face. They carefully factor these parameters into their design and build phases, ensuring their product is robust, versatile and user-friendly, while maintaining performance output.

Australian-built work boats continue to gain popularity, and have won many international awards for performance and quality.

Australian builders have the capability to use steel, aluminium and fibre re-enforced plastic (HDPE) to build work boats to meet end-user needs and preference.

Good illustrations of the sector's capabilities are the Australian winners in the 2014 Work Boat World Awards. These vessels were selected best in their class from global competition

- Best windfarm support vessel: Kem 1 – Built by Evolution Commercial, WA, for service in Denmark

- Best large fast crew/supply vessel: Muslim Magomayev – Built by Incat, Tasmania, for service in the Caspian Sea
- Best line boat: Necedo – Built by Elite Marine, WA, for service out of Port Hedland, WA.

Here again, Australian builders have the capability and capacity to custom design, build and outfit work boats for a specific need. They have the ability to conceptualise and build something that's totally new, and ensure it is fit for operation over the next 20-30 years. Some of the vessel types for which Australian builders are enjoying growing acclaim are pilot boats, crew boats and rapid response vessels (used, for example, by customs, water police and the coast guard).



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Offshore support vessels (OSVs) – designed and tailored to strict safety guidelines

Offshore support vessels, while generally classified as work boats, tend to be designed and built to service specific tasks within offshore industries, such as oil and gas and offshore power development projects. Offshore vessels are generally utilised to provide support services to offshore drilling rigs, pipe laying and oil production assets (e.g. platforms), and perform a range of tasks within oil and gas exploration and production.

Given that significant offshore oil and gas production is based in and around Australia, the local commercial maritime industry has the benefit of home-grown experience when designing, building and supplying a range of OSVs to the offshore industry. Australian builders have a good appreciation of the operational requirements and challenges faced by OSVs, and as a result have incorporated innovative design and build concepts.

Australian manufacturers can supply a range of offshore vessels such as

- **dive support vessels (DSV)** used for dive support and for subsea repair and maintenance work
- **anchor handling tug supply (AHTS)** used for towing and anchor handling operation for cranes, mobile operation platforms and pipe laying vessels
- **heavy lift and crane barge** used for transporting and lifting heavy structures
- **emergency response rescue vessels** to provide safety support services to offshore crew
- **utility vessels** to support offshore construction and transport of supplies and equipment to and from offshore sites
- **platform supply vessels (PSV)** for supply of bulk cargo to offshore platforms
- **construction support vessels (CSV)** to support subsea installations and construction.

While the OSV industry has grown rapidly in size and vessel range, so has the number of Australian builders. These firms have the knowledge, technology and capacity to build a diverse range of OSVs, tailored to meet specific offshore tasks, including vessels for growing industries such as offshore wind farms.

Australian-built OSVs can be found servicing offshore tasks as far away as the North Sea, with great success.



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**Naval vessels –
with demonstrated capability**

The Australian naval shipbuilding industry has a proven and demonstrated capability to build naval vessels using systems and architecture suitable for a range of vessels and operational needs.

There are a number of full-scale naval dockyards capable of building a range of highly-advanced warships and submarines to meet military standards.

In addition, Australian shipbuilders such as Forgacs and Austal (see case study) have dual-use facilities that allow them to undertake certain naval projects as well as commercial projects.

Commercial vessel builders like Incat also operate dual-use facilities to build a range of commercial vessels

such as fast passenger/vehicle ferries, crew vessels, offshore support vessels and platforms for high-speed paramilitary vessels.

Techport Australia, based in Adelaide, is another prominent naval hub that has provisions for a dual-use facility, available for commercial and defence projects such as vessel repairs and maintenance or consolidation of specific projects. Service providers are able to utilise individual or multiple elements within this facility, depending on the scope and scale of their project.

These facilities have proven capacity to incorporate design capabilities, technical knowledge and applications between commercial and naval projects to produce state-of-the-art vessels that are lightweight, fuel-efficient and high-speed.

A number of Australian manufacturers developed capabilities to build specialist vessels for specific military applications such as the unmanned autonomous vessel (UAV) built by

Britton Marine for the Royal Australian Navy (see case study). With diversified technical and design skills, Australian builders are fast developing cross-over capabilities, enabling them to offer innovative solutions and products.

Incat has established themselves as a world leader in the production of high-speed vessels for commercial applications, and have also successfully carved a niche within the military/naval market segment. Their vessels have attracted military attention with their speed, flexibility, fast turn-around in ports, shallow draft, minimal crewing, versatility, reliability and economic operations. With such success, Australian shipbuilders continue to transform the naval vessel market, and stand ready to explore opportunities arising out of the defence market.



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MARINE EQUIPMENT/ HARDWARE AND ACCESSORIES

High quality and custom-made

From the complex software used to ensure the world's largest ships don't touch the sea bed, to seemingly simple devices to make vessel handling easier, many of the latest innovations in the industry have an Australian pedigree.

As the country that invented the 'black box' found in all commercial aircraft, safety is high in the nation's psyche. Environmental protection and operating efficiencies are also strong drivers for innovation.

There are many success stories for Australian marine equipment companies, with a number of

Australian brands found as standard equipment on commercial vessels worldwide. This includes fire protection, flotation, liferaft and survival systems, diving equipment, salvage and recovery devices.

Success stories include Muir, which exports windlass and anchoring systems to 50 countries around the world for recreational, commercial and military purposes; and VEEM, an engineering company known for, among other products, gyro-stabilisers and propellers for the marine, oil and gas, aerospace and defence industries.

A company at the forefront of maritime safety is Liferaft Systems, whose liferafts and survival products are well known and used worldwide by recreational, commercial and military customers.

The matrix in this document (pages 45-48) is an indicator of the breadth and depth of Australian-made marine equipment and accessories, ranging from under keel clearance systems, navigational aids and ship docking systems, to small components used in vessel builds and fitouts.

Australian companies also offer mooring and docking stabilisers, fenders, bollards, cranes, carriers and lift systems. They design and manufacture propulsion and engine systems, engine components, rudders, propellers, hydraulics and steering systems.

There is also considerable electronics and instrumentation expertise in Australia, covering such areas as navigational devices, auto-pilots, power sources, security systems, ICT, radios, satellite communications and entertainment systems.

Products locally available for fitout are of top-quality and suitable for the highest standard of specification.

Strong networks exist in the industry, and these bring component manufacturers together with designers and builders to maximise the benefits for the local supply chain.

Your local Austrade representative can advise you further on how Australia can meet your commercial marine or naval requirements.



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INNOVATION

Australia is renowned for world-class research and innovation across a wide range of industry sectors. This is underpinned by a multilingual, highly-educated and skilled workforce. Australian Prime Minister, Malcolm Turnbull, has emphasised the importance of innovation for Australian industry.

As an island nation and an advanced economy, innovation in the marine industry is a necessity. In order to remain globally competitive, Australia's commercial shipbuilding and services sector has been built on a foundation of ideas and solutions. As such, it has invested heavily in the technological, design, engineering and product and service development aspects of the sector.

In addition, Australia's recent \$89 billion, 20 year plan to build surface warships and submarines ensures that it will be one of the largest shipbuilding and maritime markets in the world. With the opportunities this announcement will bring, Australian companies are at the forefront of providing cost reductions and efficiencies.

The Commonwealth Science and Industrial Research Organisation (CSIRO) is at the cutting-edge of transformational technology in Australia's manufacturing industry through the

development of advanced manufactured devices, integrated systems and new business models.

As an example, in response to a request from a leading cable manufacturer, Olex, CSIRO developed a plastic cable coating, a polymer, which transforms into a fire-proof ceramic in a fire. This protects electrical circuits for alarms, pumps and fans vital for safe evacuation and firefighting, and could keep electricity flowing in a fire at temperatures above 1000°C.

This polymer creates a protective ceramic coating around wiring when exposed to high temperatures. In addition, all the materials in the cable have low calorific value, which prevents a fire from advancing or spreading and minimises smoke and hazardous gas emissions. Ceramifying polymers have a host of potential applications in fire prevention in buildings, ships, vehicles and industrial and defence equipment.

In addition, CSIRO are working to replace the Royal Australian Navy's large and heavy antennas with a small number of radio frequency antennas that are much more sensitive, lightweight, low-noise and as small as a Coca-Cola can. The new technology aims to give the Navy greater stealth and safety, new functionality and cost savings. By applying this technology, CSIRO will increase antenna receiver sensitivity to

a level approaching the quantum limit, while increasing the bandwidth at the same time.

International partners are easily able to collaborate with Australian companies and research institutions; invest in or incorporate Australian solutions into existing products; or enter into joint ventures to take products to the global market. Australia has the capabilities to participate in global value chains at every stage of the innovation cycle, including research, design, development, testing and production.

Australians are imaginative problem-solvers, focused on solving real-world challenges. Australia's many world-first discoveries include the technology behind high-speed Internet Wi-Fi, Google Maps, the world's first cochlear implant, ultrasound and 'smart' synthetic polymers.

Providing solutions is an entrenched part of Australia's culture. The OECD Skills Outlook 2013 report found that Australia performs well on complex problem-solving measures, ranked ahead of Canada, Germany, the UK and Japan⁶. These solutions can be readily supplied and integrated into global value chains, and tailored to specific requirements.

To find out more about Australian research and innovation, please contact Austrade.



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SERVICES

**Naval Architecture and
Engineering Design –
world-class and trend-setting**

The industry has a rich base of naval and marine architects with skills and proven track records in designing and overseeing construction of high-performance vessels. While shipbuilders have in-house designers and engineering personnel, there are many freelance designers (naval architects) in Australia who offer their services to the domestic and international markets.

Australian naval architects and marine engineers are well trained, and offer their services across the whole spectrum - from sketching or evaluating preliminary designs to designing, overseeing vessel construction and fitouts, to maintaining vessels.

Australia has the expertise to offer both general and specialised services from naval architects and marine engineers, covering all facets of design

- naval architecture
- marine and mechanical engineering
- HVAC engineering
- electrical design
- interior design
- drafting
- niche services such as
 - design optimisation in equipment and engine compartment to minimise noise pollution
 - seakeeping analysis
 - performance analysis.

Highly-qualified marine surveyors are also available to survey (inspect) vessels ranging from small ferries to large crude oil carriers and cruise liners, and report on the condition of the vessels and their equipment.

Project management - bringing it together

Project management has increasingly gained importance in today's commercial shipbuilding environment, where managing challenges such as design and technical specification, regulatory and standard requirements, supply chain, construction schedule and fitout are key considerations in the economic viability of commercial vessels.

The Australian industry has experienced personnel with expertise to project manage construction of vessels for both commercial and naval applications. Naval architect firms offer capability and capacity to manage a specific or whole-of-service project.



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MAINTENANCE, REPAIR AND OVERHAUL (MRO) AND SUSTAINMENT

Australia has a broad capacity for commercial MRO work and military sustainment. Australia's shipyards provide extensive wet and dry dock repairs, full refitting capabilities and offer significant ship-lift capacity. Dry docking capability of approximately 75,000 GT – the equivalent of a medium-sized cruise liner – is available in Queensland, New South Wales and Western Australia, whilst Tasmania is well placed to service Antarctic operations.

Australian shipyards offer multi-purpose services. As well as scheduled work such as major overhauls and refits/refurbishment, they can undertake routine scheduled maintenance, mechanical, electrical and electronic repairs, structural work, damage repair, and attend to emergency breakdowns.

Australia's MRO industry works together to provide a complete in-country solution for its customers. It is not uncommon to find commercial marine clusters alongside shipyards, offering specialist services such as fabricators.

Several major common user facilities exist, further increasing the options for both domestic and international customers. Two of the most significant of these can be found at Techport Australia (South Australia) and the Australian Marine Complex (Western Australia). Techport Australia is significant in being both a military and commercial common user facility, and also offers the largest ship-lift capacity (22,000 tonne) in the Southern Hemisphere.

In other areas a number of related businesses are based in a marine complex, offering a diverse range of MRO services to marine sector, for example the Gold Coast City Marina and Shipyard, and the Super Yacht Group in Cairns.

Vessels purchased from Australia's larger builders will sometimes return to Australia for refit, refurbishment or modification (including repurposing). Alternatively, it is common for the builder to send staff to the region of operation, or even to set up a service base in that region.

Incat Tasmania, for example, routinely supplies staff such as fitters, electronics and hydraulics experts for specific repair and maintenance works, while Austal has set up offshore bases to provide maintenance support.

Australian technicians are used as often as possible for offshore servicing. When local staff are utilised, it is common for them to be trained in Australia.

Military sustainment capacity is also healthy, both in dedicated naval dockyards and in commercial shipyards which focus on military support vessels.



Case Study:
AirBerth boat lift storage systems

AirBerth's innovative boat lift system is designed to protect boats from the harsh marine environment; raising the boat out of the water to prevent fouling on the hull and saving metal parts from electrolysis.

The AirBerth is the ultimate in boat protection for commercial applications and has been associated with leading government associations and commercial operators around the world.

The company is the winner of the 2015 Maritime Australia Limited Industry Innovation Award and it's easy to see why. The AirBerth boat lift system's unique innovative capability is based on its robust design combined with its use

of heavy duty UV stabilised High Density Polyethylene (HDPE). The patented flexible cradle evenly distributes the weight of the vessel, ensuring maximum stability, even in adverse weather conditions. Importantly, it can also be operated by a single person.

The AirBerth system saves the customer time and money in maintaining the vessel and is estimated to have a 50-plus year lifespan. Corrosion is not a factor and marine growth has no impact, and AirBerth eliminates the need to use toxic anti-fouling paints, which have well-documented adverse effects on the environment.

The boat lift system is suitable for vessels up to fifteen metric tonnes, as well as multi-hull vessels such as catamarans.

AirBerth boat lift systems have a proud export history emphasising the reliability and strong reputation of the product and company.

Key AirBerth customers include the United States (US) Navy, US Coast Guard and the Australian Border Force.

AirBerth is the preferred system for commercial and maritime users as it maximises vessel deployment time, as well as the number of days a vessel is available for deployment.

airberth.com





Image courtesy of AirBerth

Case Study:

Austal's Littoral Combat Ship (LCS) and Joint High Speed Vessel (JHSV)

Western Australia's Austal shipyard has successfully adapted a proven commercial passenger-vehicle ferry design to deliver the Littoral Combat Ship (LCS), a new class of naval warship for the United States (US) Navy.

At the same time, the company has evolved a catamaran ferry design into an effective, joint forces high speed theatre support vessel. The Joint High Speed Vessel (JHSV) is being used by both the US Navy and the US Marines.

In addition to three LCSs and five JHSVs already delivered, a further nine LCSs and five JHSVs are currently under construction in Alabama by Austal USA, as part of contracts worth in excess of \$5.1 billion.

The unique trimaran design of the LCS, developed in Australia, provides for exceptional seakeeping, high speeds, economic manoeuvrability and multiple-mission capability, features which have drawn high praise from US Navy officials.

The JHSVs catamaran design offers fast logistical support, with medium-lift aviation capability that delivers mission personnel, cargo, equipment and vehicles to littoral environments quickly and efficiently. The US Navy Military Sealift Command is operating five JHSVs around the world, providing humanitarian aid and support services to developing nations.

A variant of the JHSV design, called a High Speed Support Vessel (HSSV) has been developed for the Royal Navy of Oman, and two 72 metre vessels are currently under construction at Austal Australia. Due for completion in 2016, the HSSVs demonstrates Austal's ability to adapt proven designs to meet specific customer requirements.

austal.com





Image courtesy of Austal

Case Study:
Unmanned Surface Vessel, Britton Maritime Systems

Navies around the world are looking for unmanned surface vessels (USVs) for mine counter measures in shallow waters. In New South Wales, Britton Maritime Systems (BMS) is currently providing this capability to the Royal Australian Navy, and has been approached by other navies in the Asia Pacific region.

Built to a design by West Australian Mark Ellis, the vessels, with their unique low magnetic and acoustic capabilities, are 100 per cent Australian manufactured and unique in the southern hemisphere.

BMS has entered into a partnership with ECA Robotics in France for the supply of the remote control signal modules for the vessels, and also entered into a worldwide marketing agreement for the

supply of the total package. All training is conducted in Australia.

The USV can be remotely operated, fully autonomously operated without operator intervention, or operated as a manned platform. The control system consists of a command link that provides extensive control features and sends a comprehensive array of data back to the shore or ship-based command and control centre.

The custom aluminium monohull is designed to withstand the rigours of operating inside a minefield for prolonged periods. Meeting the main propulsion requirement, the USV has a jet and main engine suited for long periods of medium-speed multi-influence minesweeping and high speed transit.

BMS CEO Steve Britton said the company's decision to invest in this new technology had placed the company on the radar of several prime defence contractors. International companies including BAE Systems, Thales, L3 Electronics and Northrop Grumman had also visited.

"We are looking forward to a bright future with this capability", said Britton.

brittonmarine.com.au





Image courtesy of Britton Maritime Systems

**Case Study:
Ranger and Akuna IV, Hart Marine**

When Melbourne's Port Philip Sea Pilots (PPSP) decided to replace their ageing fleet of pilot boats in 2010, they didn't have to look very far.

All-weather boats that could withstand the rough seas of Bass Strait and The Rip, the notoriously difficult entrance to Port Phillip Bay, were sourced just across the bay in Mornington, where Hart Marine builds the ORC pilot boat.

Designed by French naval architecture firm Pantocarene, the ORC craft is of fibre-reinforced plastic (FRP) construction and boasts a self-righting capability.

The futuristic Pantocarene design focuses on safety, comfort and functionality for pilots and coxswains. The wheelhouse is carried on specialised vibration isolation mounts,

lessening the impact of residual vibration. This improves working conditions for the vessel's crew and passengers. The distinctive beak bow is designed for wave piercing to reduce vertical accelerations, adding to pilot comfort, and to give early gaining of buoyancy when the bow dips in a following sea.

The hull form minimises the 'Venturi effect', where pressure differentials suck a pilot boat's hull to the side of a ship, allowing for pilot transfer at greater travelling speeds. The unique fendering system softens contact between pilot boat and ship, which increases the lifespan of the vessel and makes transit easier for pilots. Coxswains enjoy the increased manoeuvrability afforded by oversized rudders.

PPSP initially ordered two vessels from Hart Marine, the 14.4 metre Ranger and the 18.1 metre Akuna IV. Since then, Hart Marine has built another two vessels for PPSP, with a third to be delivered in 2016.

Eight ports around Australia, plus another in New Zealand, have since chosen pilot boats from Hart Marine.

hartmarine.com.au





Image courtesy of Hart Marine

Case Study:
Tuhaa Pae IV, Harwood Marine

A unique vessel sailing around French Polynesia since 2012 may have been designed in France and built in the Philippines, but it is every bit an Australian ship.

The construction of Tuhaa Pae IV was overseen by Harwood Marine, an Australian company. Harwood Marine has a medium-sized shipyard on the Clarence River near Yamba, New South Wales, but in accordance with the owners' requirements, the cargo/passenger/dangerous goods vessel was constructed at a subcontracted shipyard in Cebu, Philippines.

As requested by its owner, the 79 metre steel-hulled ship was designed to French classification society

standards - some of the most exacting in the world. Harwood Marine managed the entire build and also the supply chain, which involved extensive searches for components which met the strict classification.

Building overseas did not diminish build quality. To deliver on the project, the yard called on its extensive in-house Australian capability, which ranges from design, to construction, fitout and finishing. As testimony to this level of excellence, at the end of the 12 month warranty period, not a single claim had been made against the vessel.

Harwood Marine's exposure to the Filipino market has had other benefits; the yard has since built two 23 metre

catamaran survey vessels for the Philippines Government. In addition, an 11 metre workboat has been constructed, destined for the pearl farms of Palawan, with the imminent launch of a further two vessels for the same client. The company has also obtained more work for its Australian shipyard.

harwoodmarine.com.au



Image courtesy of Harwood Marine

Case Study:
Francisco, Incat Tasmania

The Incat Tasmania shipyard has built the fastest ship in the world. Francisco, a 99 metre dual-fuel vessel operated by Buquebus on the River Plate, Argentina, is powered by gas turbines and able to operate on either LNG or distillate. Competing with air transport, the Australian-designed Francisco travels at the lightning speed of 58 kts. In addition, Francisco is the environmentally cleanest, most efficient, high speed passenger Roll on-Roll off (Ro-Ro) ferry in the world. Launched in 2013, she carries 1000 passengers and 150 cars, and boasts the largest floating duty-free shop (over 1100sqm).

The vessel's high speed can be attributed to the combination of Incat wave-piercing catamaran design, the

use of lightweight, strong, marine grade aluminium, and the power produced by the two powerful gas turbines which drive water jets.

However Incat's reputation doesn't simply hang on Francisco. She was the eighth Incat vessel built for Buquebus, and the company has built other passenger vessels capable of travelling over 50 kts.

Incat Tasmania has delivered signature wave piercing catamarans to Europe, Asia, and the Americas over three decades. Over recent years the company has designed and manufactured a diverse range of vessels at the shipyard in Tasmania. Best known for expertise in lightweight aluminium catamarans, Incat has

shown the platform can be used for commercial ferries, workboats, or military craft.

Incat recognises that customers sensitive to rising fuel costs, and seeking environmentally attractive transport solutions, may forgo some speed in exchange for efficiency and cleaner fuels. Incat therefore offers dual-fuel and medium-speed options, whether for ferries or the offshore industry.

incat.com.au



Image courtesy of Incat Tasmania

Case Study:

RFA Argus, Liferaft Systems Australia

Six years ago Tasmania's Liferaft Systems Australia (LSA) completed installation of four marine evacuation systems (MES) on RFA Argus, a primary casualty receiving ship operated by the United Kingdom's Royal Fleet Auxiliary. Eight 100-person liferafts were also installed. RFA Argus required rapid and safe evacuation, with unique capacity for Means of Rescue (MOR) and the ability to evacuate stretcher cases.

After a successful installation, the system passed a harbour acceptance trial involving over 100 Royal Navy and RFA personnel, as well as a replica stretcher evacuation overseen by the Royal Institute of Naval Medicine. While the system has never had to be deployed in an emergency, six test deployments have so far been successfully carried out.

"Working closely with both BMT and the RFA we were able to demonstrate the ability of LSA MES to evacuate all personnel, regardless of injury or physical condition", said Peter Rea, LSA European Manager.

Mr Rea said the project had also attracted significant new work. "Since securing RFA Argus, LSA MES was chosen for the prestigious Royal Navy Queen Elizabeth class aircraft carriers."

The regular servicing needed by safety systems means ongoing customer care is essential. LSA maintains relationships with its customers through an extensive global network of service partners.

It also covers all training requirements.

LSA is highly experienced in managing military projects – servicing navies and defence departments in the UK, New Zealand, United States, Australia, France and the Netherlands. The company has already adapted its products to meet some highly specific needs – such as minimising the effect on a ship's radar footprint.

Since its inception in 1992, LSA has held firm to its original objective of designing products that are as simple to operate and service as possible, whether being used on a small private vessel or the world's most high-tech warships.

lsames.com





Image courtesy of Liferaft Systems Australia

Case Study:

Mexican passenger ferry luxury interiors – Spear Green Design

Two passenger ferries bound for Mexico will enter service with luxurious interiors designed by Sydney's Spear Green Design.

The 48-metre, 800 passenger vessels will service a well-established tourism business. They will boast leading-edge lighting effects and superior levels of comfort, with business class passengers able to recline in full leather upholstered luxury.

Economy and Premium class passengers will also enjoy the opulence of leather in their aircraft-style or lounge seating. All outer seats enjoy full-height glass windows for viewing the pristine environment they operate in. The ferries each have a bar, a childrens' area, a performance area and shop, stunning controllable lighting features, and edge-lit carved glass fish sculptures, designed to reflect the underwater treasures of the local area.

These ferries are just two examples of the state-of-the-art interiors being created in Australia for some of the world's premium vessels. Spear Green are experts at computer aided design – allowing the customer to visualise the finished result in an extremely realistic way.

As well as the Mexican ferries, Spear Green, which specialises in marine interior design for new-build and refit projects, is also working on five vessels being built by three different yards in China, for service around the Hong Kong region.

All will incorporate high levels of comfort and features, and will utilise technology transferred from the aviation industry to ensure ultimate passenger comfort.

The vessels will also share the Spear Green Design trademark of Code Compliance and Lightweight Fitout,

which results in greater efficiencies and reduced fuel burn over the life of the vessel. Their cutting-edge finishes and environmentally responsible furniture, fittings and equipment specification will help the vessel owners gain market share in a competitive environment.

Spear Green believes in the quality of product available in the Australian supply chain, and utilises it whenever possible. All of which means that for those travelling or working in a Spear Green designed interior, Australian marine design has never been better.

speargreen.com.au



Image courtesy of Spear Green Design

Case Study:

Acoustic Research Laboratory, Fiomarine

The Acoustic Research Laboratory (ARL) of the Tropical Marine Science Institute, National University of Singapore, required an observation platform, bottom-mounted on the ocean floor, which released to the surface on command, or after a fixed period of time.

Fiomarine is an Australian company that specialises in securing and retrieving valuable underwater equipment and data, and were well placed to provide the ARL with a solution.

Conventional acoustic releases often have no connecting tether line, and this was undesirable for two reasons. If no line is used the anchoring weight becomes sacrificial, while a free-floating package can drift in currents and become lost. Therefore a 'spooled line' system was needed.

Subsurface systems generally require five components; a deadweight, an acoustic release, a tether line to the instrument package, another tether line to the float and the float itself. This becomes complex and too large for small vessel deployments.

Fiomarine collaborated with ARL to devise a simple solution using its unique Fiobuoy, a submersible marine marker buoy and retrieval system, for retrieval of marine assets deployed on the seabed.

Fiobuoys' hollow casings have allowed ARL to integrate monitoring devices within the Fiobuoys. These then become PANDAs - self-recovering shallow water acoustic loggers.

Utilising Fiobuoys' all-in-one system has allowed ARL to economise the PANDA to only two components, a fully recoverable system with a lightweight recoverable anchor.

With a Fiobuoy, Fiomarine has made it possible for ARL to develop an inexpensive, robust, self-contained and highly integrated bottom-mounted data acquisition system. The PANDA is more economical and much less complex to handle and operate.

Fiomarine is a wholly Australian-owned company established in 1997, with early sales to the Royal Australian Navy's mine counter measures sector, and with later sales to Japan and USA.

Markets include defence, oil and gas, marine research and aquaculture.

fiomarine.com

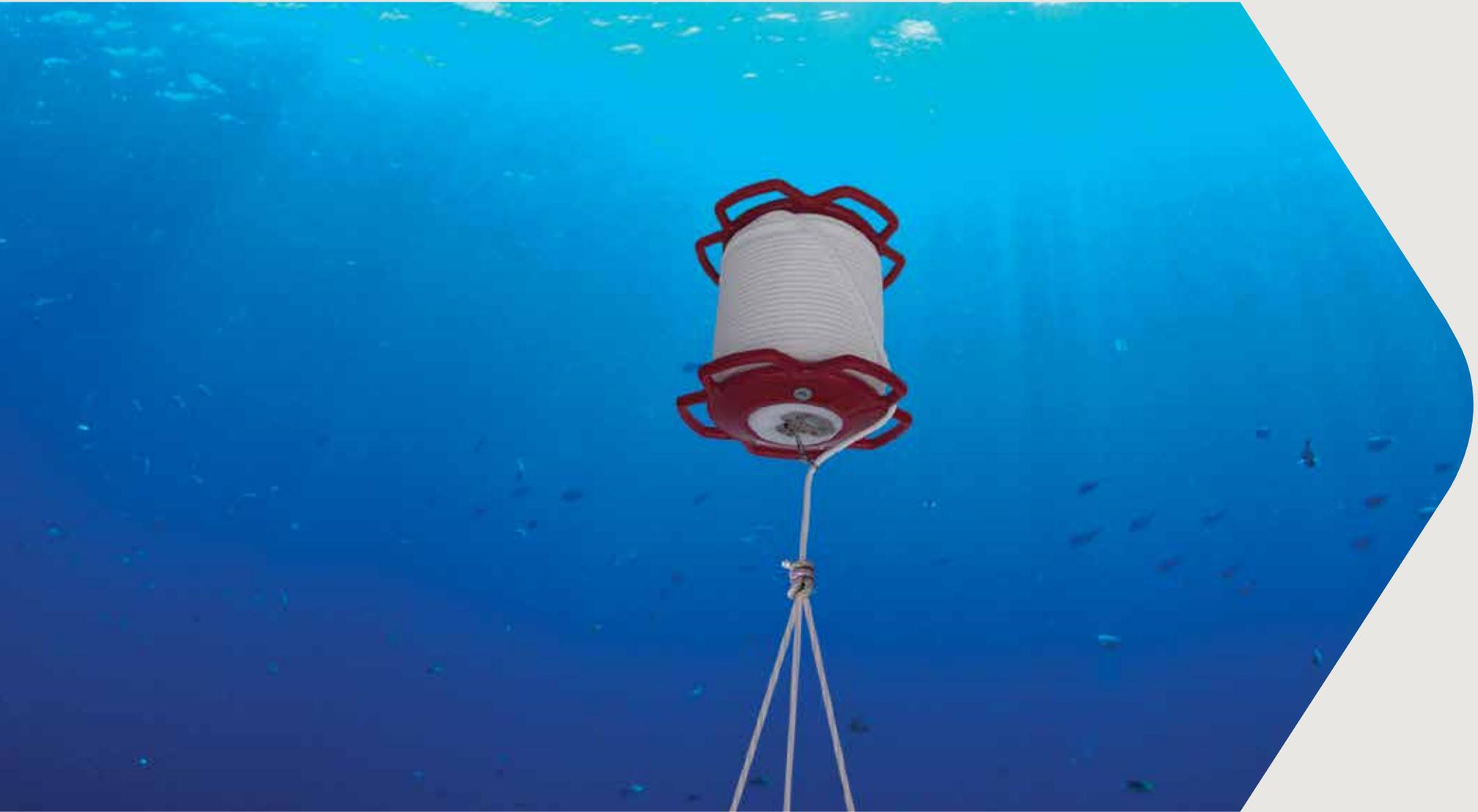


Image courtesy of Fiomarine

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SUPPLY CAPABILITY

MAINTENANCE,
REPAIR AND
OVERHAUL (MRO),
SUSTAINMENT

› **COMPANIES AND
CAPABILITIES**

KEY INTERNATIONAL
BOAT SHOWS

This table provides some examples of organisations and their capabilities, and is not an exhaustive list. Contact your local Austrade representative for assistance connecting with the Australian businesses that best suit your requirements. austrade.gov.au

Some products on the following table could be deemed as dual-use items, implying that they have both commercial and military use/functions. As such, Australian companies need to seek prior approval/clearance from the Defence Export Control Office (DECO) to export such products.

Organisations

- Large Commercial Ships/ Superyachts
- Ferries
- Commercial Boats
- Offshore Crew Boats & Wind Farm Boats
- Offshore Oil & Gas
- Commercial Services
- Mechanical & Electrical
- Composites and Electrical
- Research, Design & Components
- Naval Vessels
- Construction and Components
- Mission Systems
- Ballistic & Mechanical
- Electronics & Mechanical
- Through-Life Instrumentation
- Platform
- Research, Design & Engineering
- Stabilisers, Mooring & Docking
- Electronics & Instrumentation
- Protective & Safety Systems
- Propulsion & Engine Systems
- Decking, Flooring & Furnishing
- Chemical, Marine Coating, Anti-corrosion, Vanish
- Design & Engineering Services
- Mechanical
- Electrical/Electronics
- Refrigeration Air con/heating
- Hydraulics and Pneumatics
- Fuel/Exhaust system
- Blasting and Painting
- Equipment/Auxiliary units
- Refit and Dry Docking

	Commercial Shipbuilding				Naval Shipbuilding and Maritime Systems				Marine Equipment/ Hardware & Accessories				Maintenance Repair and Overhaul (MRO), Sustainment				Industry Accreditations				
Advanced Composite Structures Australia																					ISO9001:2008
AirBerth Marketing Pty Ltd																					
Airspeed Pty Ltd																					ISO9001:2008
Alfa Laval Australia Pty Ltd																					
Allied Data Systems Pty Ltd																					ISO9001
Aluminium Boats Australia																					
Aluminium Marine Pty Ltd																					
AME Systems																					ISO 9001
Apco Engineering																					DNV
Aqualuma LED lighting																					
Arctic Steel Pty Ltd																					
ATSA Defence Services																					ISO9001
Aus Ships Pty Ltd																					
Austal Ships Pty Ltd																					DNV, GL&LR certified, AS/NZS ISO9001:2008
Austindo (WA) Pty Ltd																					DNV, GL&LR certified, AS/NZS ISO9001:2008
Australian Welding Solutions																					AS/NZS ISO/IEC 17020 (aligned to ISO 9001)
Beak Engineering (Aust)																					ISO9001:2008
Britton Marine (Australia) Pty Ltd																					DNV, ISO9000, JAS-ANZ, AS/NZS ISO9001:2008
BSE Maritime Solutions																					DNV/GL, UKAS, CACS, JAS-ANZ
C.E. & A. Co. Pty Ltd																					ISO9001:2008

Organisations

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- Ballistic & Mechanical
- Electronics & Instrumentation
- Through-Life Support
- Platform
- Research, Design & Engineering
- Stabilisers, Mooring & Docking
- Electronics & Instrumentation
- Protective & Safety Systems
- Propulsion & Engine Systems
- Decking, Flooring & Furnishing
- Chemical, Marine Coating, Anti-corrosion, Vanish
- Design & Engineering Services
- Mechanical
- Electrical/Electronics
- Refrigeration Air con/Heating
- Hydraulics and Pneumatics
- Fuel/Exhaust system
- Blasting and Painting
- Equipment/Auxiliary units
- Refit and Dry Docking

	Commercial Shipbuilding				Naval Shipbuilding and Maritime Systems				Marine Equipment/ Hardware & Accessories				Maintenance Repair and Overhaul (MRO), Sustainment				Industry Accreditations			
Kirby Marine	●	●																		
L-3 Oceania				●			●			●					●					
LeisureCat Australia	●						●													
Liferaft Systems Australia										●										
Maritime Consultants Aust Pty Ltd										●				●						JAS-ANZ
Marine Plant Systems Pty Ltd				●						●		●	●		●					
Maritime Constructions Pty Ltd	●									●		●								JAS-ANZ
Muir Winches										●			●							DNV ISO9001:2001
Naval Ship Management (Australia)															●	●	●	●	●	●
Norship Marine														●	●					AS/NZS ISO 9001, LR
Penske Power System												●			●					
PFG Group														●						
Phoenix Australasia Pty Ltd														●					●	Lloyd's Register (LR)
Poly Flex Australia												●								DNV
Portland Precision Engineering															●	●	●	●	●	●
Rivergate Marina and Shipyard															●	●	●	●	●	●
Sage Automation													●		●					ISO4801:2004, ASNZS4801:2001
Salt-X Australasia														●						
Scott Safety												●								M.E.D 96/98/EC
Sea Transport Solutions	●	●	●	●																



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ASIA PACIFIC MARITIME (APM 2016)

Location: Marina Bay Sands, Singapore

Details: 16 - 18 Mar 2016,
apmaritime.com

Europort

Location: Rotterdam, Netherlands

Details: 3-6 Nov 2015,
europort.nl

Indonesia Marine & Offshore Expo (IMOEX 2016)

Location: Batam, Indonesia

Details: 23 - 26 Aug 2016,
batam-marine.com

Interferry – Copenhagen

Location: Copenhagen, Denmark

Details: 3-7 October 2015,
interferryconference.com

International WorkBoat Show & Annual Conference

Location: New Orleans, USA

Details: 1 – 3 Dec 2015,
workboatshow.com

SMM Hamburg 2016

Location: Hamburg, Germany

Details: 6 - 9 Sep 2016,
smm-hamburg.com

World Maritime Technology Conference (WMTTC15)

Location: Rhode Island, USA

Details: 3 - 7 Nov 2015,
sname.org/2015wmttc

INMEX SMM – India

Location: Mumbai, India

Details: 26 - 28 Sep 2017,
inmex-smm-india.com



Photo courtesy of CSIRO

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2. Ibid 2015 - Industry Report C2391
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6. OECD Skills Outlook Report 2013 http://skills.oecd.org/OECD_Skills_Outlook_2013.pdf. Accessed October 2015.





The Australian Trade Commission – Austrade – contributes to Australia’s economic prosperity by helping Australian businesses, education institutions, tourism operators, governments and citizens as they:

- develop international markets
- win productive foreign direct investment
- promote international education
- strengthen Australia’s tourism industry
- seek consular and passport services.

Austrade helps companies around the world to identify and take up investment opportunities in Australia as well as to source Australian goods and services.

Our assistance includes:

- providing insight on Australian capabilities
- identifying potential investment projects and strategic alliance partners
- helping you to identify and contact Australian suppliers.

W www.austrade.gov.au

E info@austrade.gov.au



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Australian Government
Australian Trade Commission

