INCAT COMPANY PROFILE

INCAT PROFILE

Wilsons and Coverdales sheds

Australian shipbuilder Incat is renowned for construction of high speed lightweight catamarans.

Sitting at the cutting edge of environmentally friendly craft Incat provide optimal lightweight ship solutions for ferry operators, special service providers and militaries. From fast, flexible and efficient vehicle-passenger ferries to high-speed military support vessels, crew ships and dynamic platforms, Incat sets the global benchmark in aluminium ship technology.

With the continuing emphasis on eco operations and fuel efficiency Incat has continued to develop the breed with lightweight, environmentally friendly fuel-efficient ships carrying heavier vehicle loads than ever before and at the lowest operational costs.

Incat's shipyard is on Prince of Wales Bay at Derwent Park near Hobart, Tasmania, Australia. The facility incorporates more than 70,000 m^2 of undercover production halls, with two dry-dock areas capable of accommodating up to six vessels under construction. A reputation for quality and excellence in production is supported by an experienced and dedicated workforce.

Incat takes ownership of the customer's specific needs ensuring on-time delivery of the right ship for the right job.

The Incat production facility

CHAIRMAN'S MESSAGE

Incat has come a long way since the September 1977 launch of our first high-speed catamaran at Prince of Wales Bay in Tasmania, 200 metres from our present site. The journey forward takes us through to today's generation of large Ro-Pax wave piercing catamarans, including the world's fastest ship, which is also the world's first high speed Ro-Pax ferry operated on environmentally friendly LNG.

Early challenges, with the introduction to service of prototype craft, were met and improvements made on production vessels. Our aim is to continue to improve the breed. The desire to improve is evident in our dedicated designers and tradespeople, ensuring that each ship delivered is significantly better than the last.

With four building halls, extensive wharf facilities, a slipway and two dry-dock areas, Incat boasts innovative production facilities to construct, launch and deliver small craft through to larger ships of 150 metres length and of panamax beam.

With Incat vessels proven in regular service we have achieved an excellent reputation for safety, speed, reliability, efficiency and ride. These factors, and importantly passenger comfort, are paramount to us in designing and constructing the world's best fast ships.

Applications are diverse; whether commuter ferries, large passenger and freight ships, military and coastguard craft, or workboats for the offshore industry; whether it's for calm waters or heavy seas, the Incat product offers optimum transport solutions.

Change in the shipping world's environmental regulations is a positive for Incat and the high speed industry. Our design and engineering team have long been focused on maximising efficiency and fuel economy, and will continue to lead the way. The advantage of lightweight construction can be a bonus whether it is for high speed or with lower installed power and lower speed for an economical fuel saving operation.

Talk to our team about what Incat can offer for your transport service.

Robert Clifford AO
Chairman

BOARD OF DIRECTORS

Aerial view of the Incat yard

Incat Holdings Limited
Chairman
Robert Clifford

Incat Australia Pty Ltd
Incat Chartering Pty Ltd
Investment, Ship Sales & Charter
Managing Director
Craig Clifford

Incat Marketing Pty Ltd
Marketing & Public Relations
Managing Director
Kim Clifford

Incat Tasmania Pty Ltd
Managing Director
Simon Carter

Incat Tasmania Pty Ltd
Group Company Secretary
Chris Stennard

INCAT THE HISTORY

Tassie Devil 2001 (017)

Little Devil (013)

Development of passenger/vehicle ferries

The Incat group evolved from other boat building companies, including the Sullivans Cove Ferry Company (SCFC) formed by Robert Clifford in 1972. SCFC built conventional steel mono-hull vessels, and operated small ferries across Hobart's Derwent River. SCFC gained prominence transporting more than 9 million passengers in the two years following the 1975 Tasman Bridge collapse, the sole bridge link between the eastern and western shores of Hobart.

After the bridge re-opened, International Catamarans Pty Ltd specialised in the construction of fast ferries. After extensive research the company commenced specialisation in aluminium construction.

In 1983 the wave piercing design was conceived, the 8.7 metre prototype craft *Little Devil* (013) first undergoing trials in 1984. The results encouraged International Catamarans to proceed with a 28 metre Wave Piercing Catamaran (WPC), *Spirit of Victoria* (016), which entered commercial operation in mid 1985. *Tassie Devil 2001* (017) was launched in December 1986. The current range of WPC still reflects the characteristics of these early craft.

The Incat group of companies is privately owned, with shares held by the founder and chairman of the board Robert Clifford, the Clifford family, company directors and employees.

HALES TROPHY

July 1998 - Hull 049 *Cat-Link V*

Three ships to win the trophy all built by the same shipyard.

Record held for over 25 years.

The Hales Trophy for the fastest transatlantic crossing by a passenger ship is not only a test of speed, but a test of endurance and reliability.

The past three trophy winners, all built by Incat, each in turn earned the right to fly the prestigious Blue Riband. Since 1998, *Cat-Link V* (049) has held the Hales Trophy with a record of 41.284 knots.

The essence of the Blue Riband dates back to the 1830s, when ships fought for the honour of being the fastest transatlantic liner. To encourage innovation in passenger transport and formalise the Blue Riband, Harold Hales, a British MP, commissioned and donated a four foot high, heavily gilded solid silver trophy, known as the Hales Trophy, in 1935.

The last big liner to win the trophy was the *SS United States* on its maiden voyage in 1952, averaging 35.59 knots.

In 1990 Incat's *Hoverspeed Great Britain* (025) broke *SS United States'* 38 year old record. The 74 metre Incat Wave Piercing, car-carrying catamaran established the record of three days, seven hours and 52 minutes averaging 36.97 knots. The win fulfilled the original purpose of the trophy to encourage the continued development of technology and design in passenger shipping.

Eight years later Incat-built *Catalonia* (047), on a longer route from New York to Spain, raised the average speed to 38.85 knots also becoming the first commercial vessel to cover over 1000 nautical miles in 24 hours.

Just one month later, in July 1998, *Cat-Link V* (049) broke the 40 knot barrier with a new record speed of 41.284 knots. For the first time, three ships to win the trophy in succession had been built by the same shipyard.

KatExpress 2 (067)

An Incat Wave Piercing Catamaran is easy to recognise thanks to its distinctive centre bow.

The design of an Incat Wave Piercing Catamaran (WPC) is a constant evolution. With each incremental increase in waterline length comes a myriad of modifications to the design, however the vessels within each generation are far from identical with a range of configuration, fit-out, and performance variations evident.

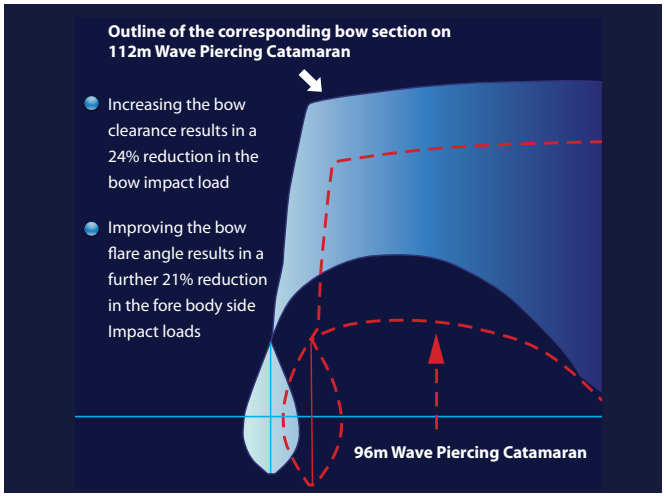
The Centre Bow

The main role of the centre bow is to act as a shock absorber for oncoming seas. Normally the centre bow is above the design waterline. As the ship pitches into waves, the buoyancy force provided by the immersion of the centre bow causes the vessel to reduce its pitching motion by acting as a huge damping system.

Continual development over vessel generations has led Incat to design the centre bow to provide even more lift in the initial stages of wave encounter. The arch between the centre bow and the wave piercer bows has been modified on later craft to obtain more freeboard and to have less flat surface.

The centre bow is the first part of the ship that encounters waves, passengers are therefore cushioned from damaging accelerations by the action of the bow engaging large waves.

The result – a smoother ride.



PRODUCT DEVELOPMENT

Product improvements and lessons learnt from decades working with the commercial sector have enabled Incat to deliver proven and tested craft.

Since the first 74 metre high speed passenger and vehicle ferry was delivered to the UK in 1990, there has been a gradual but constant incremental increase in vessel waterline length and deadweight, while still maintaining the high speed that Incat is famous for. Payload has increased significantly as the vessel length has increased.

Incat craft have universal appeal offering fast transit, fast turnaround in port, flexibility and versatility in vehicle deck layout, passenger comfort, shallow draft, minimal crewing numbers and reliable and economic operation.

A great diversity of craft has been built, from yachts to large Wave Piercing Catamarans. Incat vessel generations have progressed through to the current designs - 70 metre, 85 metre, 98 metre, 112 metre and 130 metre. Diversification within this range is evident with variance in passenger numbers, vehicle and freight capacity and configuration. A great diversity of galley and other support facilities are possible to suit each owner's operational and route profiles.

Recent vessels under 50m, please refer to page 26.

2017 ↑	PAX & HEAVY FREIGHT			PAX & LIGHT FREIGHT		PAX & LIGHT FREIGHT			
	109-112	98-99	96	91	86+85	81	78	74	K CLASS
	Hull 088				Hull 068				
	Hull 067	Hull 069							
	Hull 066								
	Hull 065								
	Hull 064								
		Hull 062							
		Hull 061 Hull 058							
		Hull 060 Hull 059							
		Hull 057	Hull 056 Hull 055						
			Hull 053 Hull 052 Hull 051						
			Hull 050	Hull 049 Hull 048 Hull 047					
				Hull 046	Hull 045 Hull 044 Hull 043 Hull 042	Hull 041 Hull 040 Hull 038			
							Hull 035 Hull 034		Hull 037 Hull 036
							Hull 033		
								Hull 032 Hull 031 Hull 030	
								Hull 028 Hull 024	
1990								Hull 027 Hull 026 Hull 025 Hull 023	

The Sullivans Cove Ferry Company

1972
- Mathew Brady

1973
- James McCabe

1975
- Lawrence Kavanagh
- Martin Cash

1977
- Jerimiah Ryan (001)

VESSELS PRIOR 1990

1988
- Sea Flight (022)
- 2000 (019)

1987
- Genesis (018)

1986
- Tassie Devil 2001 (017)
- Our Lady Pamela (021)

1985
- Our Lady Patricia (020)
- Spirit of Victoria (016)

1984
- Pybus Rutherglen Punt (014)
- Keppel Lady (011)
- Margaret Rintoul IV (015)

1983
- Thunderbird (012)
- Trojan (010)

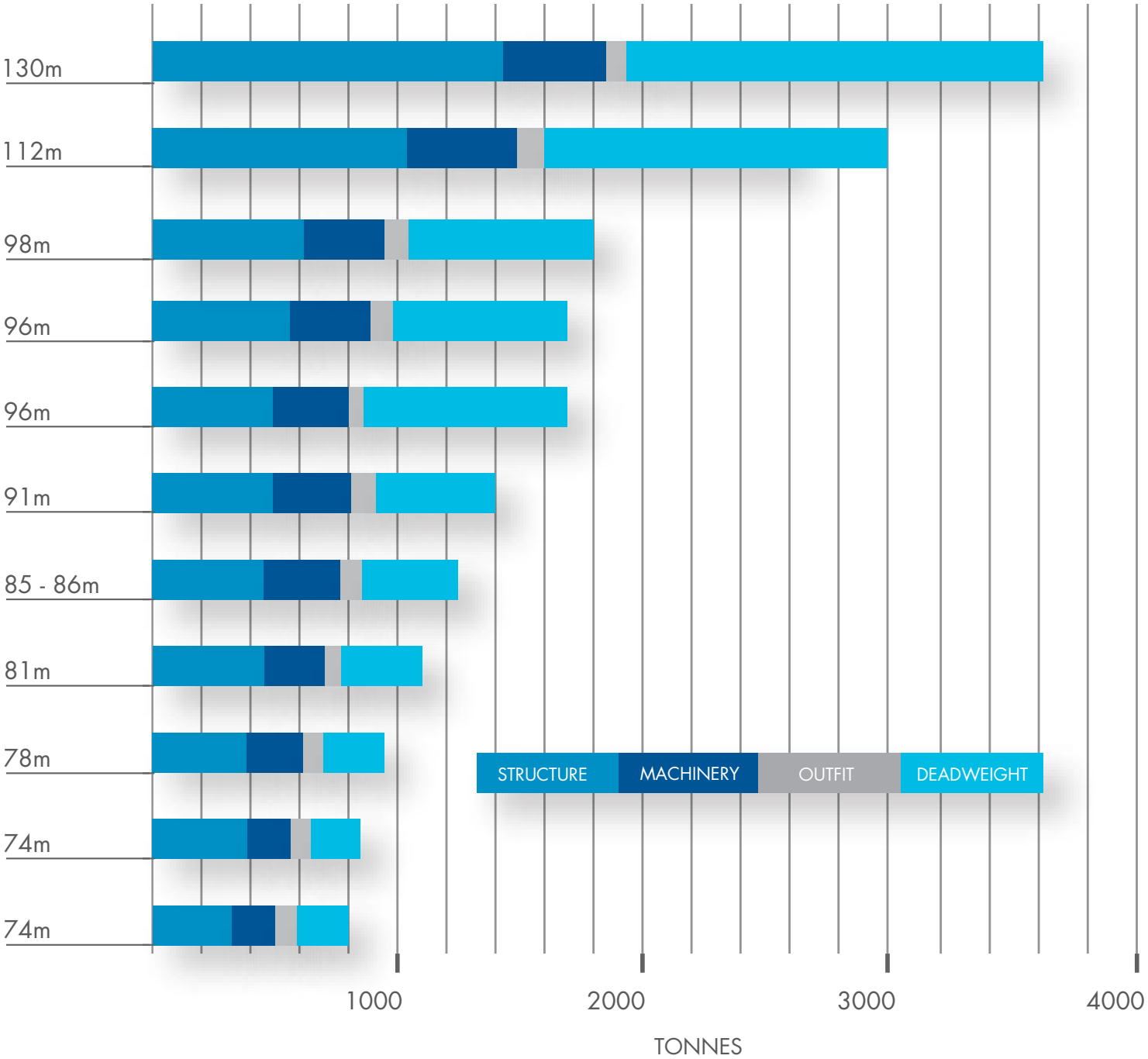
1982
- Little Devil (013)
- Spirit of Roylan (009)
- Quicksilver (008)
- Green Islander (007)

1981
- Amaroo ll (006)
- Tangalooma (005)
- Fitzroy (004)

1980
- AK Ward (003)

1979
- James Kelly (002)

Progressive Development



PRODUCTION LINE

Incat's world beating Wave Piercing Catamarans are created through a production line system at the dedicated 70,000 m^2 undercover facility.

Up to six vessels can be handled simultaneously in two drydocks which includes the ability to house construction of larger vessels up to 150 metres in length.

Like any thriving business, a core of dedicated and loyal staff can be found at the centre of Incat's success. With high levels of job satisfaction, Incat ensures a low staff turnover rate and a skilled workflow where many team members' experience stretches back over two decades across a range of trades.

Incat is proud to count the world's finest skilled technicians amongst our workforce. High performance vessels require high quality welding and the training of welders, development of appropriate welding procedures, and advanced testing techniques are essential to Incat's continued success. The purpose-built TAFE College of Metal Fabrication is situated adjacent to the yard for even greater convenience.

Plate Shop

High-strength marine grade aluminium alloy, sourced in structural sections and plate from specialist suppliers in Australia, France and Switzerland, arrive at the plate shop where it is purpose cut using software proprietary to the cutting equipment on site. Nesting plans are generated to extract a useable part from every stock piece of material.

Pre-fabrication

The Inches shed is mainly used for manufacturing of vessel components and it is to here that materials are delivered from the plate shop ready for pre-fabrication. This is also where the smaller vessels are constructed.

The benefits of pre-fabrication are immense. Components can be rotated and by selecting orientation, the number of down-hand welds can be increased which in turn shortens welding time. Bulk plating, where the longitudinal structure extrusions are welded to the shell plate, means that welding is only required at transverse frames when these units are lifted into position.

Assembly

Stage 1 - Continued refinement of the pre-fabrication and module construction process has seen the stage 1 positions of both the main assembly halls transform into pre-fabrication areas for large components such as fuel tanks, engine rooms, jet rooms and superstructure modules.

Stage 2 - Modules completed at the various pre-fabrication locations at Incat are then transported and positioned in stage 2 of the construction hall applicable to that series of vessel.

Construction begins in the centre of the vessel allowing rapid growth, in a controlled manner. As the fabrication & welding teams progress throughout the vessel, our quality assurance/control departments and survey authorities check and approve the completed structure.

On completion of this process the fitters, fitout electrical and electronic teams move in and install services and equipment.

The vessel continues to grow in this position until it is approx 70% of its completed light ship weight, at which time the vessel is rolled back to the next stage of the production sequence. With stage 2 cleared modules for the next new build are able to fill this spot.

Stage 3 - With the vessel in its final stage before launch the forward end of the vessel is completed and the unique Incat catamaran shape becomes recognisable.

At this stage main machinery such as engines, jets, thrusters, T foils are installed. Once the equipment is carefully positioned and secured the vessels' structure is closed off for the final time and painting and livery requirements are addressed.

Fitout

The majority of the fitout work is completed by the yard's highly skilled tradespersons in the stage 3 position. Fitters, plumbers, electricians, electronics, fitout, hydraulics, pneumatics, painters and structural fire protection personnel all set about completing the various components and systems on board the vessel.

Launch

With engines installed the vessel is ready for launching, once clear of the shed the radars and aerials are fitted and final commissioning of systems takes place. Builder's trials and sea trials for the customer are completed and the vessel is ready for handover and delivery to her new home.

DESIGN TECHNOLOGY

Revolution Design

Revolution Design's team of naval architects, engineers and designers work with the concept and creative team at Incat to develop and refine vessel design. The team work together from concept through research and development, on structural design and analysis, drive line technical specification and layout, naval architecture services and complete drafting and design services for Incat vessels.

Research projects conducted in conjunction with vessel owners enable constant product development from an informed and accurate standpoint. The R&D team aims to improve ship design and 'buildability' with the continual goal of weight reduction, plus research into ways to improve operational reliability, efficiency and economy.

Incat's latest generation craft have a payload carrying capacity almost 100% of the ship's own weight. The high payload to vessel ratio has not been achieved by any other builder in the global high-speed light craft industry.

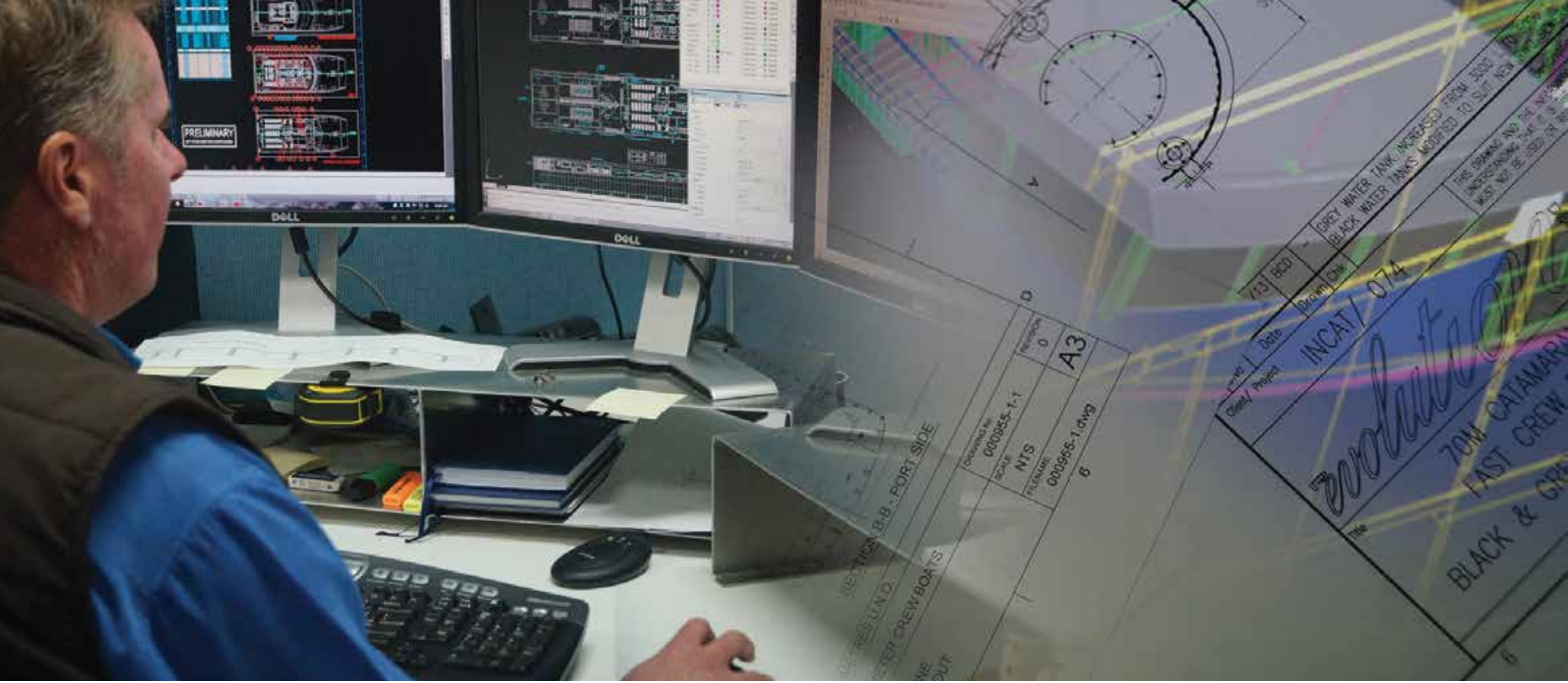
Incat and Revolution Design use Finite Element Modelling (FEM) to analyse design options and optimise both global and local scantlings in order to produce a weight efficient design without compromising strength.

A global FEM uses relatively coarse finite elements over the entire vessel structure to illustrate the stress behaviour under imposed design loads that are based on extreme sea conditions.

Local FEM models are then required to further evaluate stress distribution in 'hot spot' areas that the global FEM has highlighted as having high stress levels.

The SeaFrame

Constructed as a base vessel or SeaFrame, in line with the aviation industy's AirFrame – the structure of an aircraft



exclusive of its fittings – the craft can be fitted out for numerous purposes, including passenger/commercial, freight, offshore industry or military deployment.

Building to SeaFrame enables lower production costs and consequently lower ownership costs of Incat built Wave Piercing Catamarans.

Diesel engines or dual fuel reciprocating engines to utilise MGO and LNG are available from several manufacturers depending on client requirements for vessel size, power and speed. If higher speed is required dual fuel gas turbines are also an option. The cargo/vehicle/mission deck, provides 797 truck lane metres (TLM) plus 148 cars, or 420 cars if required for a full passenger car mode, for high car capacity routes requiring high flexibility lifting mezzanine decks are an option.

Using the example of the Incat 112 metre SeaFrame, the vessel incorporates four diesel engines providing the 36 megawatts required to power the vessel at speed, ranging from a heavy load economy speed of 20 knots to 50 knots light.

Vehicle deck headroom is generally 4.5 metres, and with a beam of 30.2 metres, heavy road vehicles can easily turn in the bow for quick disembarkation over stern ramps.

Incat's latest generation craft have a payload carrying capacity almost 100% of the ship's own weight.

evolution DESIGN PTY LTD

Francisco (069), world's fastest HSV

LNG EXPERTISE

Incat has built the world's first high speed Ro-Ro ferry powered by LNG as a primary fuel. The world's fastest ship operates on the River Plate between Argentina and Uruguay for South American customer Buquebus.

Hull 069, *Francisco*, with capacity for over 1000 passengers and 150 cars has a proven lightship speed of 58+ knots, and an operating speed of 50 knots.

The passenger cabin includes tourist, business and first class seating, and over 1100 square metres of extensively fitted out duty free shop, the largest shopping area ever installed on a fast ferry.

The vessel has the first installation of LNG powered dual fuel engines in an Incat high speed ferry, and the first high speed craft built under the HSC code to be powered by Gas Turbines using LNG as the primary fuel and marine distillate for standby and ancillary use.

OPTIMISING EFFICIENCY

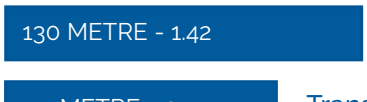
Mols-Linien Port Infrastructure, Odden, Denmark

Transport efficiency

Size has a big impact on vessel efficiency. The larger the vessel, the more efficient it is. Transport efficiency can be defined as; (Deadweight x speed / power).

To satisfy market expectations the new generation of fast ferry must be capable of operating at economical high speeds, have fast turnaround times, be comfortable and yet operate more efficiently than conventional ferries.

Powered by conventional, affordable, medium-speed diesel engines, yet still offering among the fastest operating speeds in the world, the current generation of Incat vessels is remarkable. Incat's next generation of vessels will utilise the latest engines available, whether medium-speed, high-power diesel engines, dual fuel engines or gas turbines. Attractive power to weight ratios offered by modern engines enable Incat to increase deadweight capacity and to increase operational speeds of the vessels.



$$\text{Transport Efficiency} = \frac{\text{Deadweight x Speed}}{\text{Power}}$$

ONE SHIP CARRIES ALL

Some Incat 96 and 98 metre vessels are fitted with hoistable mezzanine decks enabling the stowage of cars on two levels. Deployed with a minimum of fuss, as and when required, the decks provide the operator with the flexibility to adjust load plans of a highway mix of traffic to suit sailing fluctuations.

To take advantage of shoulder seasons or night freight runs, the mezzanine decks may be raised to deck head level to allow a concentration of freight vehicles. Alternatively the decks may be split to accommodate a mix of cars and freight, suiting the operator's needs on any given sailing.

On the 112 metre vessels a full length upper car deck features above the main vehicle deck thereby leaving the latter free for shipment of a full load of freight vehicles and buses. The lower deck can be built to allow semi-trailers to turn on board.

High Speed Interface

The reduction in port turnaround times through the development of Incat's unique vehicle deck arrangement has received widespread endorsement from an industry where every minute and every dollar counts.

While early Incat vehicle craft were equipped with bow doors, contemporary commercial Incat vessels load and discharge over the full width stern, enabling a capacity load to discharge within minutes. The wide beam on the larger Incat craft allows even heavy trucks to drive on and drive off. By comparison single lane discharge of trucks through the bow of the craft can be a relatively slow and tedious process, however if port facilities mean that bow discharge is the preferred option, Incat also has vessel designs incorporating bow or side access doors to suit customer requirements.

Unlike their commercial counterparts, Incat's military craft don't enjoy the luxury of having dedicated shoreside linkspans available to load and discharge their cargoes. Therefore

these vessels can be equipped with articulated ramps to accommodate more than the average highway mix of vehicles, and with access to austere ports.

Truck turning

Versatility and flexibility of the High Speed Catamaran for the commercial operator means being able to carry any vehicle that can travel on the road. For the military operator the mission focus will determine the way the "vehicle" deck or mission deck is configured.

A wide beam and well spaced deck supports allow large trucks to drive on and drive off.

Vehicle deck arrangements on Incat vessels allow operators to configure the loading arrangement to suit demand on any particular sailing, in the commercial world maximising revenue opportunities and providing year round flexibility, while in the military arena providing maximum space for mission cargo.

To take advantage of shoulder seasons or night freight runs, the optional mezzanine decks may be raised to deck head level to allow a concentration of freight vehicles.

PASSENGER COMFORT

The world's most effective ride control systems are installed on Incat Wave Piercing Catamarans to ensure passenger comfort and safety.

Since the year 2000 Incat vessels (from hull number 056) have been fitted with the revolutionary, award winning retractable T-foil, positioned at the aft end of the centre bow.

The T-foil is used in combination with two transom mounted trim tabs providing ride control forces equivalent to a pair of keel mounted T-foils ensuring a smooth ride in heavy seas.

The retractable T-foil is used only when it is needed, hence there is less drag to slow the ship, with resultant savings in fuel and less chance of the foil striking a submerged object.

The T-foil can be retracted in calm seas and the ride control system switched off. In moderate seas the ride control system is activated and only uses the trim tabs with the T-foil still stowed inside the ship. In high seas, the T-foil is deployed and the full capability of the ride control system is brought to bear on maximising passenger comfort.

Vessels are also equipped with trim tabs, a hydraulically operated device to assist high speed craft to accelerate lift, reducing pitch and roll, thus improving passenger-ride and comfort.


Award winning retractable T-foil

Flexible rubber mounts between superstructure and hull ensures a minimum of noise and vibration permeate the climate controlled passenger cabin, maintaining an atmosphere of relaxation and comfort.

FLEXIBLE FITOUT

Incat interiors range from luxurious, glamorous lounges and glitzy cocktail bars through to the more utilitarian robust interiors designed for military and offshore workboat applications.

Materials used on high speed vessels must meet a stringent set of regulations for fire/flame retardancy, smoke development and toxicity levels. All interior fitouts are constructed and finished with attention to detail and weight saving, whilst maintaining the sturdy, easily cleaned and maintained features required in high traffic passenger areas.

Whether a single or dual class short route tourist vessel or a military vessel which could be at sea for considerable periods, the Incat fitout team tailor the interior to suit the client. Military craft can be fitted with short term berthing, a range of cabins, C4ISR area, extensive galley and crew facility areas.

The 112 metre and larger vessels can be fitted with escalators or elevators to move passengers from vehicle deck to lounge levels.

STEERING THE COURSE

The Wheel House

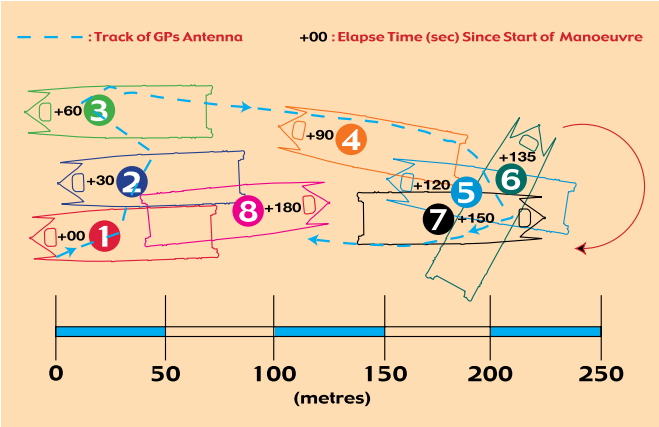
360-degree visibility for the officers over the top of the aerodynamic superstructure, with an aft-facing docking console and CCTV monitors negate the need for bridge wings with the associated windage and weight. The wheelhouse is fitted with the latest in electronic navigation and communication equipment to comply with the High Speed Craft Code.

Manoeuvrability

Within one minute of lines being released the ship can be off the berth and completing a 10 degree turn before accelerating to harbour speed, and in less than three minutes she can be at 40 knots.

During manoeuvring it takes only ten seconds to change from full ahead thrust to full astern thrust; thus the ship will stop in a fraction of the time of conventional craft.

The Wave Piercing Catamaran can make a 360 degree turn in its own length; not requiring a bow-thruster brings savings in weight, hull drag and a quieter ride at sea.



OFFSHORE SOLUTIONS

Muslim Magomayev (074)

A fast crew boat is operating in the Caspian Sea oil and gas industry in Azerbaijan. The 70 metre, 30 knot semi-swath catamaran incorporates a crew transfer system consisting of dynamic positioning equipment coupled with a stabilised access platform, effectively a walk-to-work system.

The vessel, the largest catamaran fast crew boat to operate in the global oil and gas industry, transports 150 workers to multiple offshore installations in lieu of helicopter transfers.

The boat offers fast transits in sea conditions of 40 knot wind and seas of 3m SWH, with over 100 sq. metres of cargo deck for cargo hot shots of 110 tonnes of specialised equipment over 300nm at speeds up to 35 knots.

With the resiliently mounted superstructure being easily modified to be as short or long as the client application and hull length requires, this has allowed the development of numerous concepts that have taken advantage of this inherent flexibility of design.

This design feature together with the inherent stability of the catamaran platform makes a work vessel concept extremely adaptable.

With a large and relatively stable working deck, bridge and hull layouts that allow for class notations necessary for operating close into offshore structures while transferring personnel or equipment, the operator has enormous flexibility in application. The decks can be configured for containerised deck cargo, carriage of bulk cargoes for transfer to platforms or when equipped with the necessary equipment, crew transfer.

The large deck area also allows for dual roles such as personnel or equipment transfer, but also be able to carry search and rescue equipment as well making these vessels adaptable and versatile for an operator.

When equipped with dynamic positioning and offshore supply vessel capability, the vessel can hold station and/or loiter at slow speed if the application calls for the vessel being fitted with a moon pool or aft or side deck winching.

SAFETY REGULATIONS

Fire Protection

An advanced lightweight Structural Fire Protection (SFP) system is used throughout Incat vessels. Significant features of the SFP include its water resistance, robustness, ease of installation and rapid removal allowing access to vessel services behind.

Other fire protection installations fitted on the vessels include single leaf hinged fire doors, single and double sliding fire doors, guillotine fire dampers, engine room hinged fire dampers, fire hatches and smoke baffles. These, combined with the lightweight SFP, form the best fire protection system available for high speed aluminium vessels.

Environment

Environmental issues are a focal consideration at Incat. As an example; Incat has achieved the world's most stringent 'low noise emissions' standards, through a series of engine room innovations, reducing machinery noise whilst the ship is alongside and ensuring interior noise levels are well below recommended limits.

Wash and fuel consumption for Incat ships are improved by the design features of maximum waterline length, shallow draft, weight minimisation, fine bow shapes and shallow transom immersion.

The vessels incorporate energy saving lighting systems and HVAC systems and engines that meet IMO emission regulations. Environmental issues relating to production are constantly monitored and waste is recycled.

Aluminium

Incat vessels are built using marine grade aluminium which is one third the weight of steel. After application of design factors the actual weight of an aluminium vessel will be

approximately half that for steel. Aluminium is lightweight without sacrificing strength, allowing increased fuel savings and safety. Aluminium is resilient and tough and has exceptional dent resistance, contributing to seaworthiness and safety.

Maintenance costs and overhaul time are less for aluminium vessels than steel due to their high corrosion resistance. Aluminium does not burn; there is some loss of strength at elevated temperatures, where aluminium ranks second only to steel. Aluminum is also non-sparking and non-magnetic which is of benefit for military minesweeping operations.

Continued operation of the original Incat vessels, now over some thirty years old, is testament to the corrosion resistance, durability and strength of aluminium.

Liferafts

Liferaft Systems Australia (LSA) in conjunction with Incat, has developed a revolutionary Marine Evacuation System (MES) which is now fitted to every large Incat vessel.

The system, proven under international scrutiny, is the safest and most advanced MES in the world. Each MES installed can be operated individually by a single crew member or alternatively, the ship's entire MES can be activated from the bridge.

LSA Liferaft

A significant safety feature incorporated into the MES is that when deployed, the Liferaft (connected to the ship by an inclined inflatable slide) is securely positioned and angled away from the hull of the ship, as opposed to alongside.

An additional safety feature of the LSA MES is that it is the only evacuation system available which is approved as a Means of Rescue, by having the capability of retrieving passengers from the sea in a rescue situation.

Installation of LSA MES ensures that one crew member can supervise the safe evacuation of 100 people in less than four minutes, well within the International Maritime Organisation (IMO) requirements.

SERVICE & SUPPORT

Service@Incat

Service@Incat specialise in the maintenance and repair of Incat fast craft worldwide.

Incat's after-sales service is primarily supported through our Service@Incat department, which is available 24 hours a day and comprises a selection of dedicated and highly trained specialists who are able to assist operators with a full range of technical support.

Service@Incat offers the following services:

- Purchase and supply of spare parts, materials and other miscellaneous equipment for craft in service.
- Identification of and rectification of in-service design issues.
- Technical consultancy service.
- Mobilisation and management of teams of Incat Tasmania qualified tradespersons in conducting emergency repairs to machinery and craft structure worldwide.
- On-hire / Off-hire craft inspection and surveys.
- Pre-purchase inspections and surveys.
- On-site project management support (superintendency) for scheduled dry dockings and surveys, emergency repairs to machinery, emergency repairs to hull and craft structure.
- Craft repair specifications, dry-dockings, (detailed repair procedures and engineering support).
- Reviewing of any proposed in-service modifications to ensure compliance with Classification and Port State regulations.
- Change of Flag - issues and compliance.
- Specialised surveys including thermographic, vibration analysis,

MILITARY/DEFENCE

HSV2 Swift (061)

Incat vessels have been utilised in a range of military applications, and the commercial off the shelf technology can provide economic, efficient and effective commercial platforms that interest defence forces which understand the need for new ways to achieve results.

The Incat platform offers fast transit, fast turnaround in port, and the shallow draft and optional ramp arrangements can significantly increase access to austere ports. Flexibility and versatility in vehicle deck layout, plus optional helicopter decks and hangars increase mission options. The wide beam and other design aspects improve passenger comfort and crew accommodation, medical and other facilities can be installed for specific requirements. Minimal crewing numbers and reliable economic operation assist with ongoing budget considerations.

In 1999 the Royal Australian Navy chartered an Incat 86 metre vessel for use during the East Timor crisis. As *HMAS Jervis Bay* she completed over 100 trips between Darwin and Dili, transporting personnel and equipment. With average speeds of 40 knots, the craft completed the 900 nautical mile return trip from Darwin to East Timor in less than 24 hours.

During this time the vessel seized the attention of the US military, enabling them to witness the potential of high speed craft to perform various military roles. As a result, in 2001 joint forces from the US military awarded Bollinger / Incat USA the charter contract of Incat 96 metre HSV X1 *Joint Venture*.

The success of *Joint Venture* led to more charter contracts. The 98m TSV-1X *Spearhead* in 2002, and HSV 2 *Swift* in 2003.

All three vessels have displayed their excellence in humanitarian roles, including *Swift's* major role in Hurricane Katrina, often responding on short notice to meet the needs of disaster relief efforts. The ships became the military benchmarks for future fast sealift acquisitions due to the high operational speed, long range deployment capabilities, combined with a high deadweight capacity.

The Japanese Defence Forces have also utilised Incat high-speed catamarans in relief operations.

UNDER 50 metres

Ocean Wave (079), *Ocean Tracker* (078)

After the construction of the 34m MR-1 for a local ferry operator in 2013, Incat has extended the range of vessels to include a number of smaller vessel sizes.

2015 saw the delivery of two 35m ferries to MBNA Thames Clipper in London, for commuter service. The sleek design can travel at over 25 knots and carries 150 passengers.

Manly Fast Ferry have taken delivery of two 24m vessels with capacity for 260 passengers, and two 33m vessels, carrying 375 passengers for routes on Sydney Harbour and for their tourist operations.

Sydney Ferries have also ordered six traditional styled 35m ferries to add to their heritage fleet on Sydney Harbour.

The 15m net cleaning vessel has been in service in Norway since 2011 and the 17m live-aboard has been in private use since 2006. There are also a number of other smaller vessel concepts being developed.

MR-1 (073)

Hull 076		35m
Hull 075		35m
Hull 082 - 087		35m
Hull 073		34m
Hull 080 - 081		33m
Hull 078 - 079		24m
Hull 063		17m
Hull 072		15m

2017 ↑	15m	17m	24m	33m	34m	35m	Misc
						Hull 082- Hull 087	
			Hull 079			Hull 076	
			Hull 078			Hull 075	
				Hull 081			
				Hull 080			
					Hull 073		
	Hull 072						Hull 071
2006 ↓		Hull 063					

GLOBAL FLEET

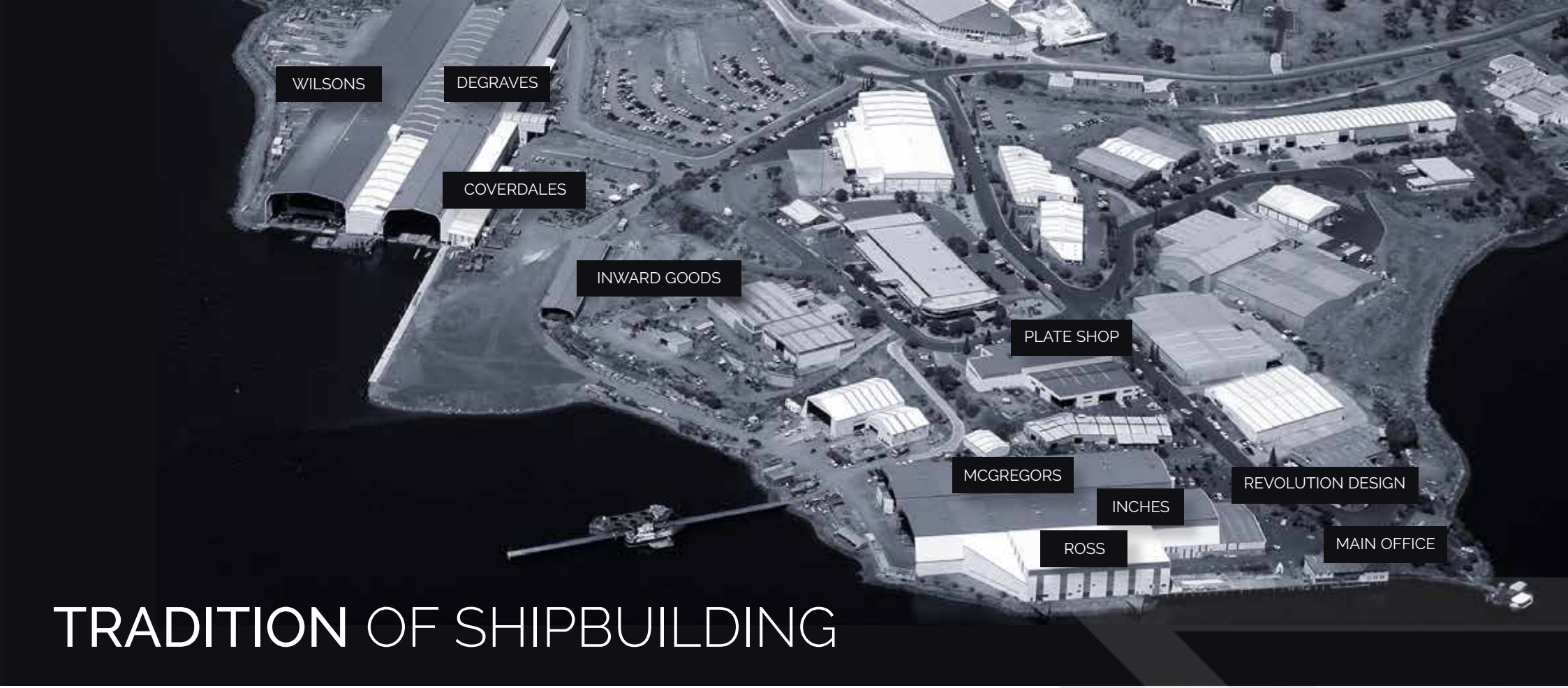
This information is correct to the best of the editor's knowledge at the time of printing.

HULL	TYPE	TRADING NAME	OWNER/OPERATOR	DESIGNATED ROUTE/LOCATION
088	109m	KatExpress 3	Mols Linien	Service for Denmark
087	35m		Sydney Ferries	Service for Sydney
086	35m		Sydney Ferries	Service for Sydney
085	35m		Sydney Ferries	Service for Sydney
084	35m		Sydney Ferries	Service for Sydney
083	35m		Sydney Ferries	Service for Sydney
082	35m		Sydney Ferries	Service for Sydney
081	33m	Ocean Flyer	Manly Ferries	Sydney Harbour
080	33m	Ocean Surfer	Manly Ferries	Sydney Harbour
079	24m	Ocean Wave	Manly Ferries	Sydney Harbour
078	24m	Ocean Tracker	Manly Ferries	Sydney Harbour
077	-	Brooke Street Pier	Brooke Street Pier Development Co. Pty Ltd	Hobart, Tasmania
076	35m	Neptune Clipper	MBNA Thames Clippers	River Thames, London
075	35m	Galaxy Clipper	MBNA Thames Clippers	River Thames, London
074	70m FCB	Muslim Magomayev	Caspian Marine Services	Baku, Azerbaijan
073	34m	MR-I	Navigators / Secheron Holdings	Berriedale - Hobart, Tasmania
072	15m	MV Lindoy	Stava Bat & Dykkerservice AS	Haugesund, Norway
071	Barge	The Barge	Tas Marine Constructions	Hobart, Tasmania
070	17m cruising ketch	Gwenhwyfar	Private Ownership	Under construction
069	99m WPC	Francisco	Buquebus	Buenos Aires, Argentina - Montevideo, Uruguay
068	85m WPC	Akane	Sado Kisen	Naoetsu - Ogi, Japan

067	112m WPC	KatExpress 2	Mols Linien	Aarhus - Odden, Denmark, Ebeltoft - Odden, Denmark
066	112m WPC	KatExpress 1	Mols Linien	Aarhus - Odden, Denmark, Ebeltoft - Odden, Denmark
065	112 m WPC	Natchan World	Tsugaru Kaikyo Ferry	Hakodate, Japan
064	112 m WPC	Natchan Rera	J & T Shipping Co Ltd	Su'ao - Hualien, Taiwan
063	17 m Liveaboard	Sixty Three	17m Projects Pty Ltd	Hobart, Tasmania
062	98 m WPC	Volcan De Tirajana	ARMAS Naviera SA	Puerto de la Estaca - Los Cristianos, Canary Islands
061	98 m WPC	Swift	National Marine Dredging Company	United Arab Emirates
060	98 m WPC	T&T Spirit	Port Authority of Trinidad & Tobago / Bay Ferries	Port of Spain - Scarborough, Trinidad & Tabago
059	98 m WPC	Hai Xia Hao	Fujian Strait Ferry Corporation	Jingtang - Liuheng, Taipei, Taiwan Strait
058	98 m WPC	Milenium Dos	Acciona Trasmediterránea S.A	Malaga - Melila, Algeceris - Ceuta
057	98 m WPC	Normandie Express	Brittany Ferries	Cherbourg - Portsmouth, Le Havre - Portsmouth
056	96 m WPC	Highspeed 6	Hellenic Seaways	Piraeus, Ios, Thira, Syros, Mykanos, Greece
055	96 m WPC	Bentago Express	Fred. Olsen, S.A.	Santa Cruz de Tenerife - Agaete (Gran Canaria)
054	Wing	R & D Craft		Hobart, Tasmania
053	96 m WPC	Bencomo Express	Fred. Olsen, S.A.	Santa Cruz de Tenerife - Agaete (Gran Canaria)
052	96 m WPC	Alboran	Acciona Trasmediterránea S.A	Algeciras - Tanger Med
051	96 m WPC	Bonanza Express	Fred. Olsen, S.A.	Las Palmas de Gran Canaria - Furteventura (Morro Table)
050	96 m WPC	Manannan	Isle of Man Steam Packet Company	Douglas - Liverpool, United Kingdom
NF08	80 m K50	Harmony Flower	JH Ferries (Dae-A Express Shipping)	Incheon - Socheong - Daecheong - Baekryoung Island, South Korea
049	91 m WPC	Fjord Cat	Fjord Line	Kristiansand to Hirtshals
048	91 m WPC	Max Mols	Mols Linien Aps	Aarhus - Odden, Denmark, Ebeltoft - Odden, Denmark
047	91 m WPC	Express	Gotlandsbaten	Västervik, Sweden - Visby, Gotland
046	91 m WPC	T&T Express	Port Authority of Trinidad & Tobago / Bay Ferries	Port of Spain - Scarborough, Trinidad & Tobago

HULL	TYPE	TRADING NAME	OWNER/OPERATOR	DESIGNATED ROUTE/LOCATION
045	86 m WPC	Condor Rapide	Condor Ferries	Channel Islands - St. Malo, France
044	86 m WPC	Champion Jet 1	Sea Jets	Greece - TBA
043	86 m WPC	Tarifa Jet	Ferrys Rapidos del Sur	Tarifa - Tangier
042	86 m WPC	Champion Jet 2	Sea Jets	Greece - TBA
041	81 m WPC	Jaume III	Baleària	Valencia - Sant Antonio - Denia
040	81 m WPC	Orange 1	JH Ferry (Dae A Express Shipping)	JangHeung - Jeju Seongsan, South Korea
039	Solar	R & D Craft	Tasmanian Fast Ferry Museum	Permanent Display Hobart
038	81 m WPC	Jaume II	Baleària	Algerciras - Ceuta
037	78 m K50	Sun Flower 2	Dae-A Express Shipping	Pohang - Uleung Island
036	70 m K55	Juan Patricio	Buquebus Aliscafos	Buenos Aires - Colonia - Montevideo
035	78 m WPC	Mega Jet	Sea Jets	Crete - Santorini - Sifnos - Piraeus
034	78 m WPC	Fares 2	Maritime Company for Navigation	Saudi Arabia
033	78 m WPC	Jaume I	Baleària	Algerciras - Tanger
032	74 m WPC	Atlantic III	Buquebus	Buenos Aires - Colonia - Montevideo
031	74 m WPC	Seacat Moorea		Phnom Penh, Cambodia
030	74 m WPC	Hanil Blue Narae	Hanil Express Co	Wando Island - Jeju-do Island, South Korea
029		R & D Craft		
028	74 m WPC	Cyclades Express	Fortune Maritime	Lavrion, East Attica - Kea and Kythnos Islands
027	74 m WPC	Atlantic Express	Colonia Express	Colonia - Buenos Aires
026	74 m WPC	Master Jet	Sea Jets	Piraeus
025	74 m WPC	High Speed Jet	Sea Jets	Iraklion, Crete - Santorini - Paros - Mykonos
024	74 m WPC	Pinar Del Rio	Baleària	Fort Lauderdale, South Florida - Bimini - Freeport - Grand Bahama Island
023	74 m WPC	Sea Speed Jet	Sea Jets	Greece

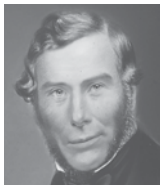
For information on vessels prior to 1990, hulls 001 to 022, refer to page 7.

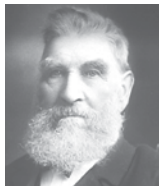


TRADITION OF SHIPBUILDING

THE TRADITION OF SHIPBUILDING IN TASMANIA AND HOBART IN PARTICULAR, IS STRONG

The skills of these pioneer shipbuilders of Hobart Town have been passed down to the present day and their names are perpetuated in the building halls making up Incat's modern shipyard.


John Ross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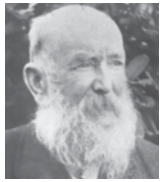
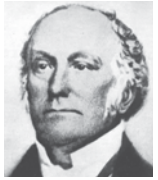
Perc Coverdale


John Wilson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