incat ecoship 130

130 METRE WAVE PIERCING CATAMARAN

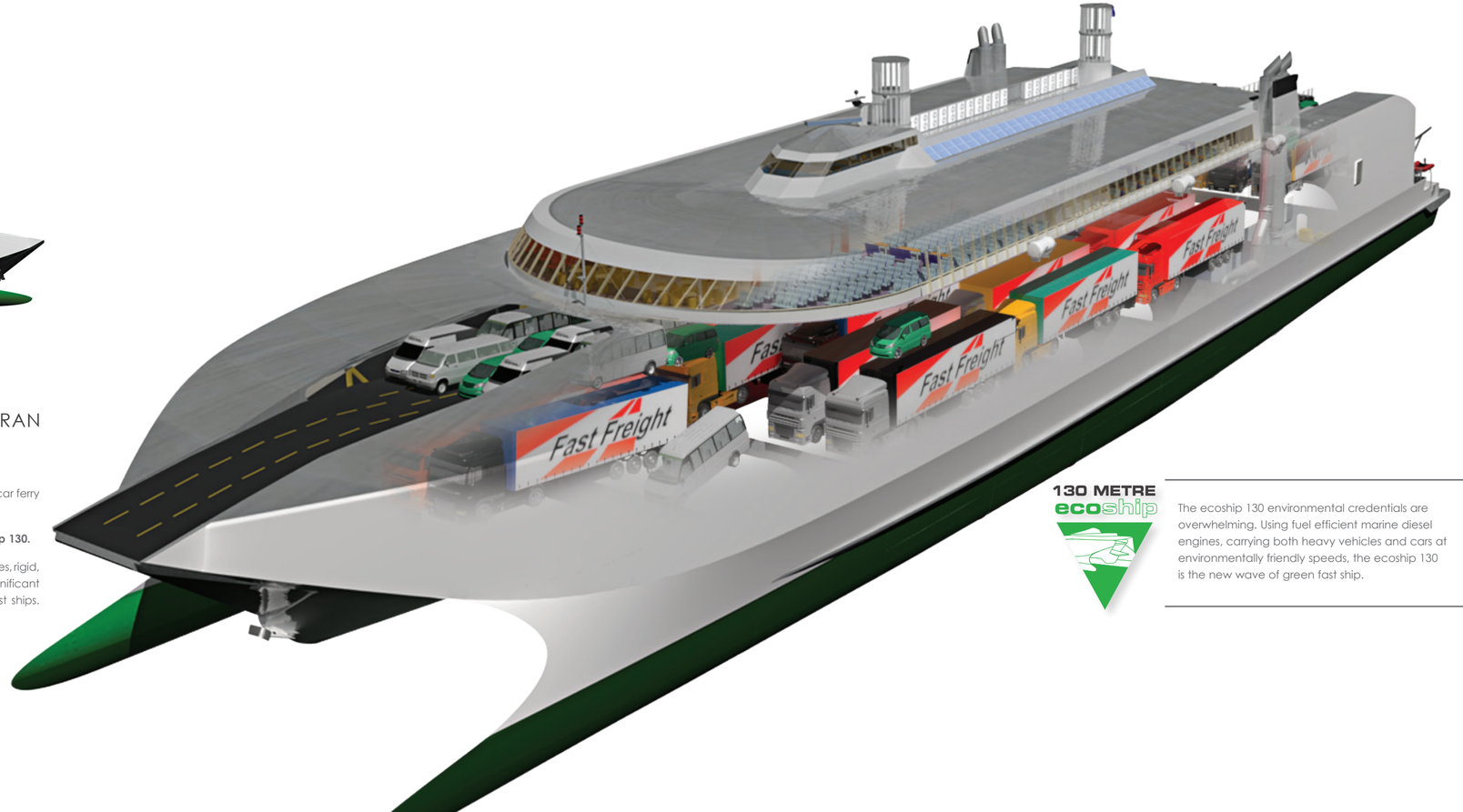
ecoship 130

130 METRE WAVE PIERCING CATAMARAN

Twenty years ago in 1990 we crossed the Atlantic in record time to deliver the first fast car ferry to Europe. Ten years later we carried the first trucks at high speed with our 96 metre.

Twenty years of development after the Atlantic achievement we introduce the ecoship 130.

Incat's ecoship 130 now offers the capacity to carry large numbers of commercial vehicles, rigid, articulated vehicles, vans and lorries at lower operational costs. The ecoship 130 is a significant development, a real coming of age, the new wave of lightweight, fuel efficient fast ships.



130 METRE
ecoship

The ecoship 130 environmental credentials are overwhelming. Using fuel efficient marine diesel engines, carrying both heavy vehicles and cars at environmentally friendly speeds, the ecoship 130 is the new wave of green fast ship.

Optimising Efficiency

The ecoship 130 is optimised for speeds of up to 30 knots. At this speed the vessel will be operating in displacement mode. Consequently the hull form is optimised for displacement speeds with the Longitudinal Centre of Buoyancy (LCB) centre moved further forward and less transom immersion. Appendage drag is kept minimal by use of retractable or low profile appendages.

Transport Efficiency - Size has a big impact on vessel efficiency. The larger the vessel is, the more efficient it is. Transport efficiency can be defined as (Deadweight x Speed / Power).

Using this definition the graph below shows the increase on transport efficiency of the Incat wave piercing catamarans as size increases.

130 METRE

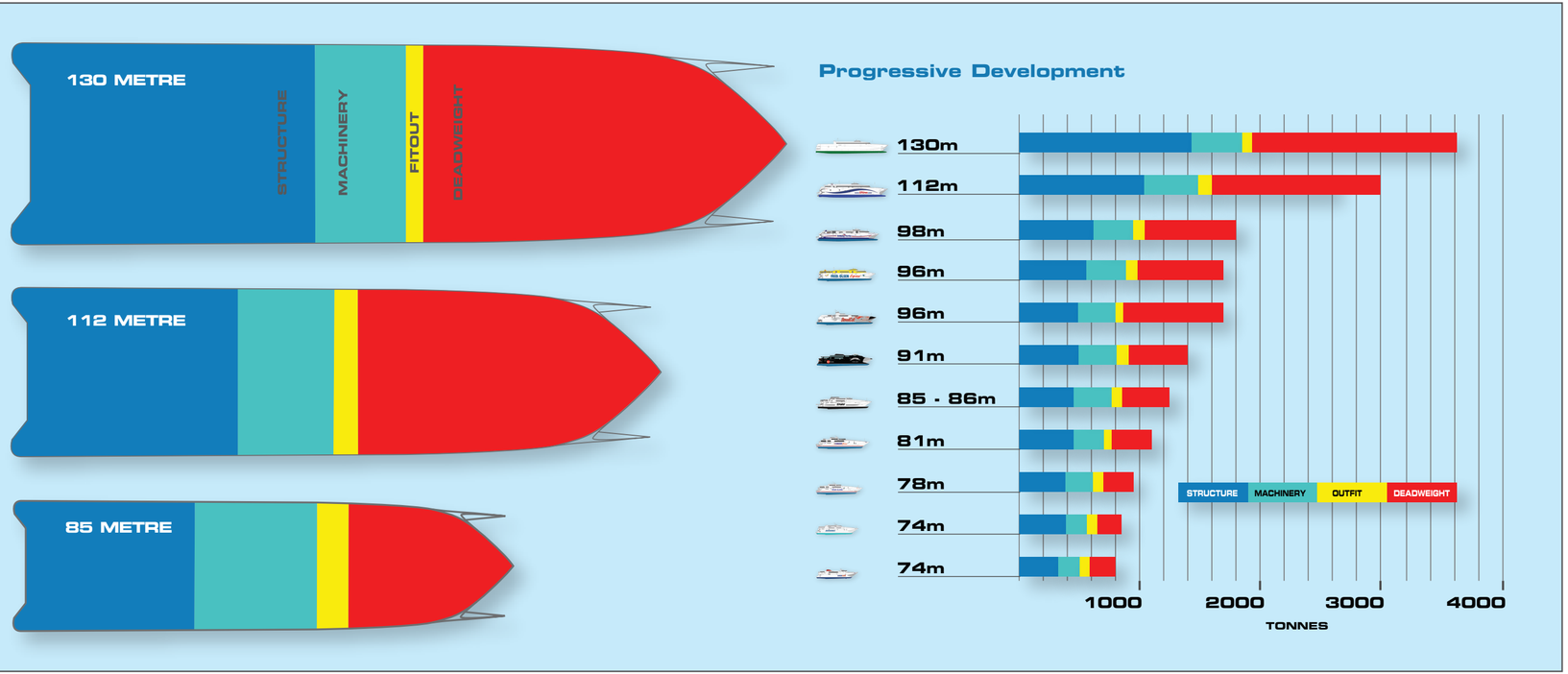
130 METRE - 1.42

112 METRE - 0.97

85 METRE - 0.88

Transport Efficiency =

$$\frac{\text{Deadweight x Speed}}{\text{POWER}}$$



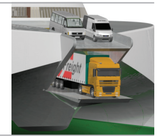
Turnaround time in Port

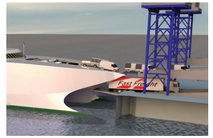
Dual level bow and stern loading will reduce port turnaround times to 15 minutes when matched with efficient port facilities.

The dual levels allow heavy vehicles to transit at the same time and separate to the cars above, ensuring car passengers are isolated from trucks and commercial vehicles.

Speed reduction is beneficial in terms of reducing emissions and improving efficiency, but the real effectiveness of such a scheme depends on the possibility of reducing port time as well. This means that the role of ports is of paramount importance for overall ship emissions. The dual level bow and stern loading of the ecoship 130 will help develop an efficient on/off loading capacity on every route.

130 METRE





Engine

The ecoship 130 is powered by four MAN 20v 28/33D diesel engines, each rated 9000kW at 1000 rpm. The advantages of MAN engine's durability, efficiency, low noise and low maintenance costs make it the engine of choice. Impressive fuel consumption means burning less kg per cargo tonne per hour of fuel than any other high speed catamaran.

The MAN engines will meet all current and future requirements for low NOx emissions set out by IMO, ensuring the ecoship 130 remains environmentally friendly throughout its working life.

The world's most stringent 'low noise emission' standard will be met by the ecoship 130 through a series of engine room innovations, reducing machinery noise whilst the ship is alongside and ensuring interior noise levels are well below recommendations.

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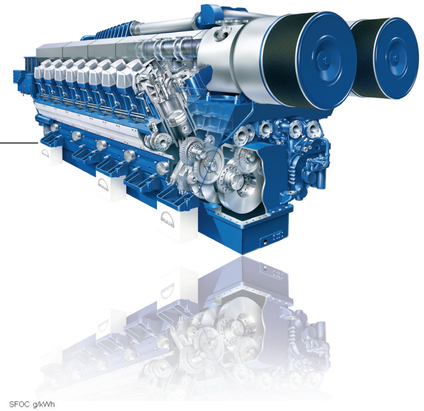
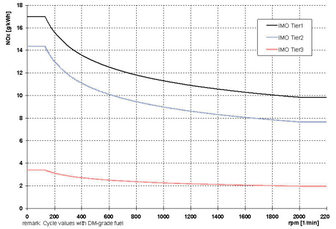
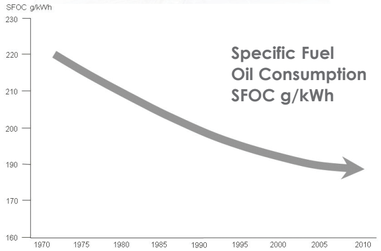


130 METRE

IMO NO_x limit curves Tier I, II & III



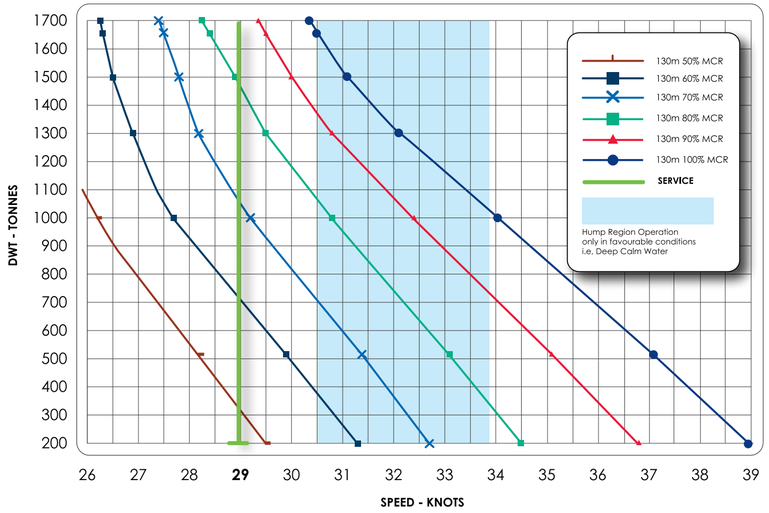


Operating Speed

The Importance of 29 knots

Designed as a ship capable of sustained economic service below hump with up to 1700 tonnes load at 90% MCR. Lower loads with reduced power e.g. 200 tonnes requires only 50% MCR.

Performance Prediction



Waterjet

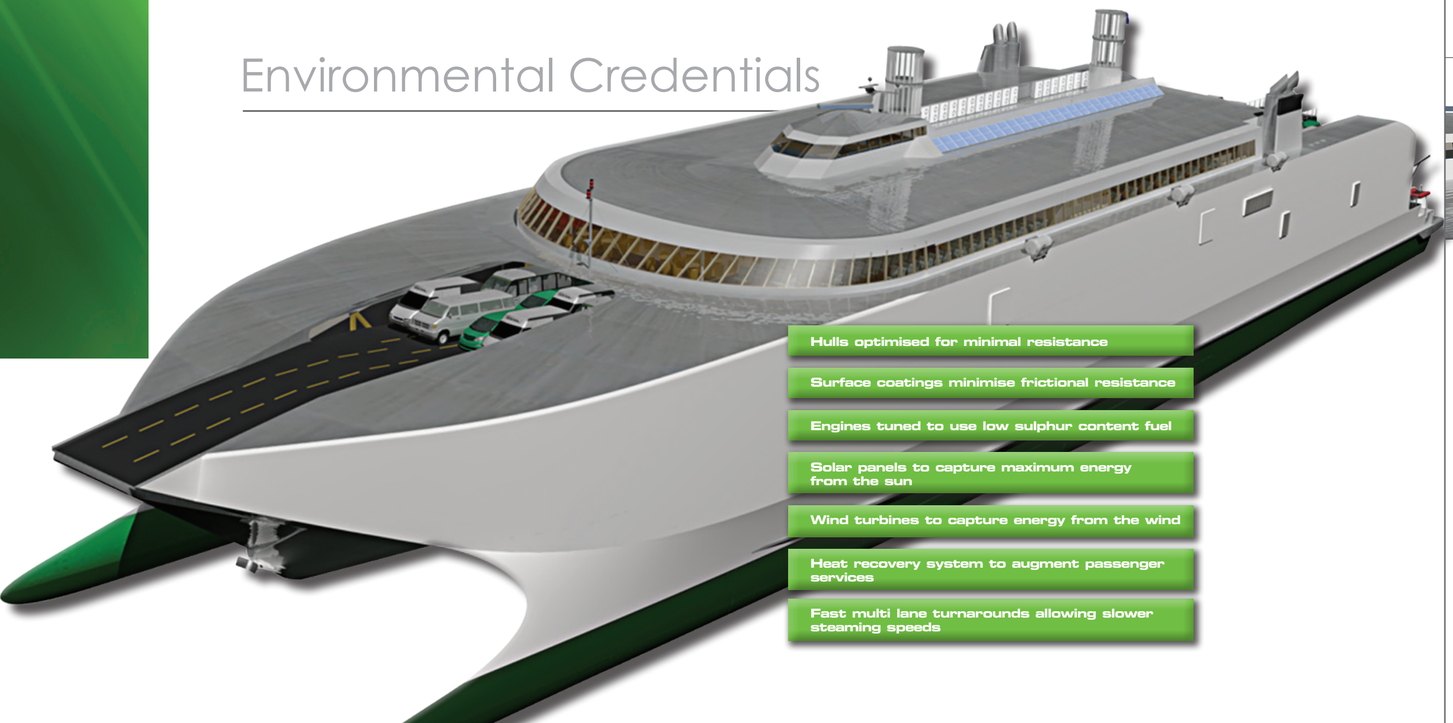
Engine power is converted to propulsive thrust through a new design of waterjet from Wärtsilä. The new LJX waterjet offers, in comparison with other waterjets available today, a 25% reduction in mounting flange diameter, a 10% overall weight reduction and a 35% increase in cavitation margin, all contributing to the lighter seaframe, more efficient fast ship.

With a 1500 mm diameter high flow impeller and inboard layout for steering and reversing hydraulic cylinders, the new design results in lower vibration levels, less noise and greater vessel manoeuvrability, further extending the environmental credentials of the ecoship 130.

Bow Thruster

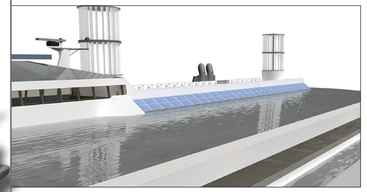
To aid the ecoship130 in slow speed manoeuvrability and berthing, bow thrusters integrated with a Wärtsilä waterjet control system will be fitted. The combination of bow thrusters and high mass flow jets will reduce the power required to manoeuvre, thus reducing impact on the seabed and marine life within the port.

Environmental Credentials



- Hulls optimised for minimal resistance
- Surface coatings minimise frictional resistance
- Engines tuned to use low sulphur content fuel
- Solar panels to capture maximum energy from the sun
- Wind turbines to capture energy from the wind
- Heat recovery system to augment passenger services
- Fast multi lane turnarounds allowing slower steaming speeds

Solar Panels



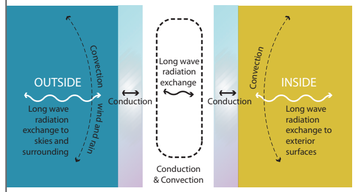
Solar panels mounted on the superstructure roof use light energy (photons) from the sun to generate electricity to charge batteries and run minor electrical services. The modular nature of solar panels allows the operator to determine the best number of units and therefore power generated for the ship's operating profile.

Wind Turbines

Turbines mounted on the superstructure roof will capture the wind flow across the ship to convert wind energy into electrical power to augment the power required by the electrical services to further reduce the ships dependency on the diesel powered generators. Unlike solar panels the wind turbines remain operational at all times of the day or night and also alongside the wharf when the ship is stationary.

Thermal Reductive Glass

An air space between two panels of glass significantly improves insulation due to the low thermal conductivity of air (compared to glass). The second panel further assists with thermal resistance



Thermal reductive glass has the potential to reduce external heat loads on the passenger space from direct sunlight and outside temperatures. Reductions of up to 30% can be expected through multi layer panels and increasing glass angles.

Heat Recovery System

The main engine exhaust is the source of heat energy. A water heat recovery system utilising the heat from the main engine exhausts will provide additional passenger cabin heating in colder climates, reducing the dependency on the air conditioning units and heat the domestic water used in the hand basins, bars and galley while the vessel is operational.

Antifouling

The ecoship 130 will be coated with a toxin free state of the art antifouling system, keeping our seas clean and green. In continuous operation the antifouling will continue to provide protection against marine growth for up to two years, ensuring marine pests aren't transported to different ports.

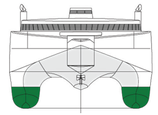
Refrigerated Containers

To enable the carriage of high cost perishables the ecoship 130 will be fitted with at least 20, 30 amp power sockets for plug in refrigerated containers. By using the ship's electrical power, the refrigeration machinery can be turned off during the voyage reducing the emissions produced by the refrigeration plant.

LED Lighting

Emerging LED (Light Emitting Diode) lighting technology has the potential to reduce electrical loads, reducing generator sizes and fuel consumption reducing airborne waste. There is also an increase in the service life of fittings reducing replacement cost and reducing the solid waste produced by the vessel.

General Arrangement



Design	Two slender, aluminium hulls connected by a bridging section with centre bow structure at forward end. Each hull is divided into eleven vented, watertight compartments divided by transverse bulkheads.
Designer	Revolution Design Pty Ltd
Builder	Incat Tasmania Pty Ltd.
Class Society	Det Norske Veritas (DNV)
Certification	DNV +1A1 HSLC R1 Car Ferry "B" EO
Length Overall	130m
Length Waterline	123.6m
Beam of Hulls	6.0m
Beam (moulded)	31.9m
Draft	Approximately 4.0m
Speed	39 knots (max)
Deadweight:	1700 tonnes

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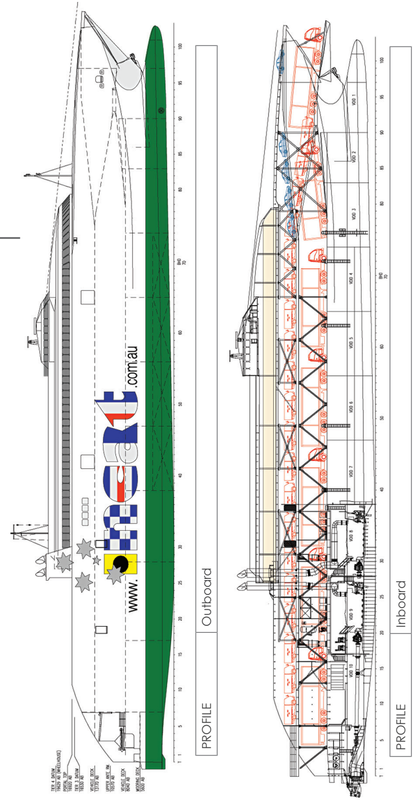

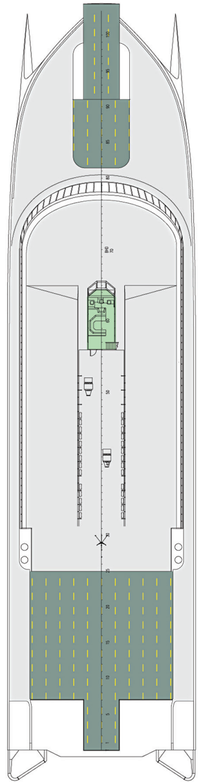

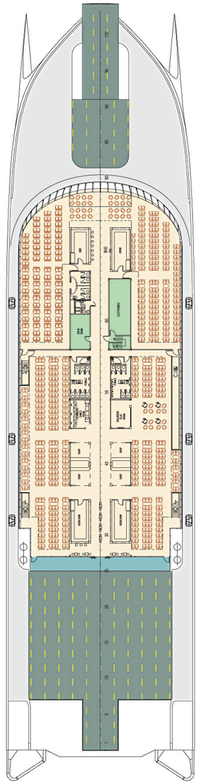

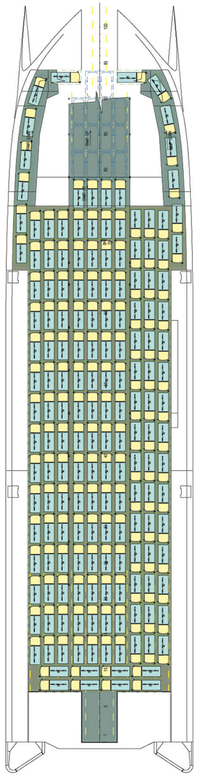

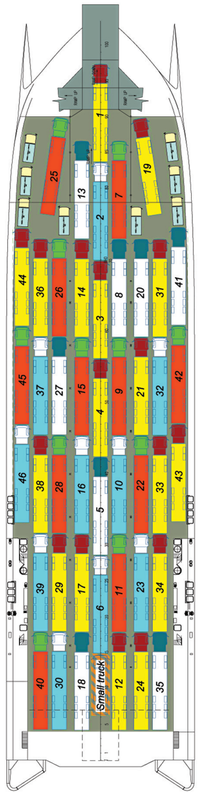

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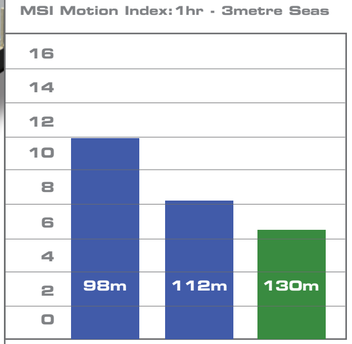
Tailored Interior

Interiors can be tailored for a single class operation or encompass both business and tourist class areas. Whether it's luxurious, glamorous lounges, glitzy cocktails bars or a children's play area, the interior fitout is constructed and finished with the attention to detail expected on Incat ships. The weight saving and features required in high traffic areas are reflected in the design whilst maintaining a safe, sturdy easily cleaned and maintained vessel. The materials used on the ecoship 130 will meet a stringent set of regulations for fire/flame retardancy, smoke development and toxicity levels, required by IMO.

130 METRE

MSI Motion Index



Size does matter. Incat already has an enviable reputation for providing high levels of passenger comfort. As the ships get larger this trend continues. The increase in ship size: length, breadth, weight, all contribute to a smoother more comfortable ride, reducing the MSI index of the 130m to almost half that of the 98m WPC.

Other factors such as large panoramic windows, larger passages, walk through shopping/kiosk malls and the latest entertainment systems, assist passengers in staying occupied and busy, further reducing the risk of sea sickness while onboard the 130m ecoship.

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