



THE WORLD'S FIRST LNG/DUAL FUEL FAST RO-RO FERRY



HULL 069

99m



LOA: 99.00 m
LWL: 90.54 m
Beam: 26.94 m
Draft: 2.98 m
Deadweight: 450 tonnes

Capacity:
Over 1000 passengers and 153 cars.
Duty free shop over 1000 square metres

Engines:
GE Gas Turbine LM2500
2 x 22 MW Total power 44 MW

Waterjets:
Wartsila LIX 1720SR

Gearbox:
Renk: Bus 175

BUILDING THE FASTEST, ENVIRONMENTALLY CLEANEST, MOST EFFICIENT HIGH SPEED FERRY

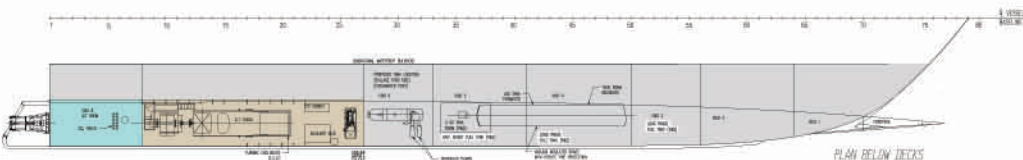
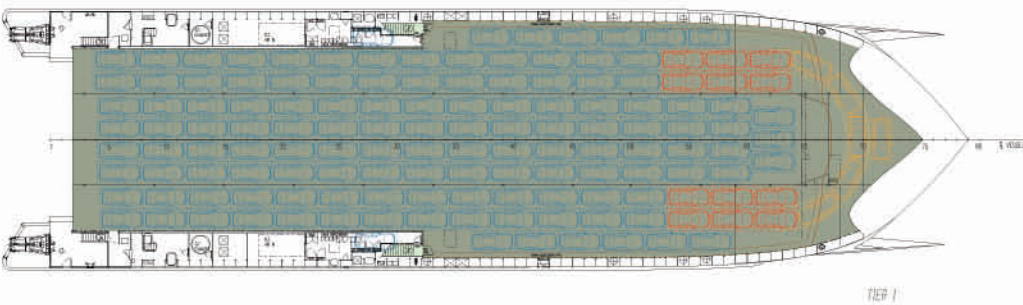
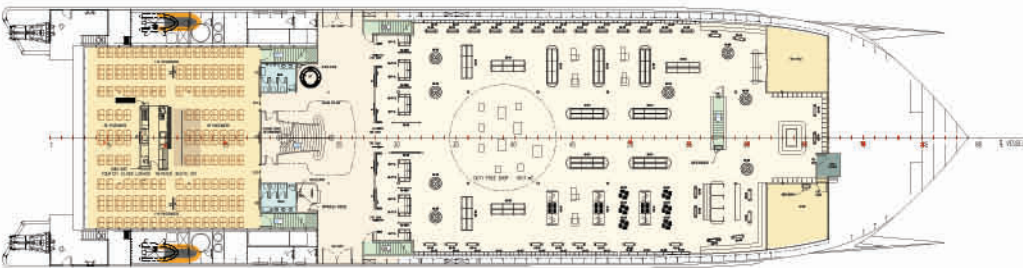
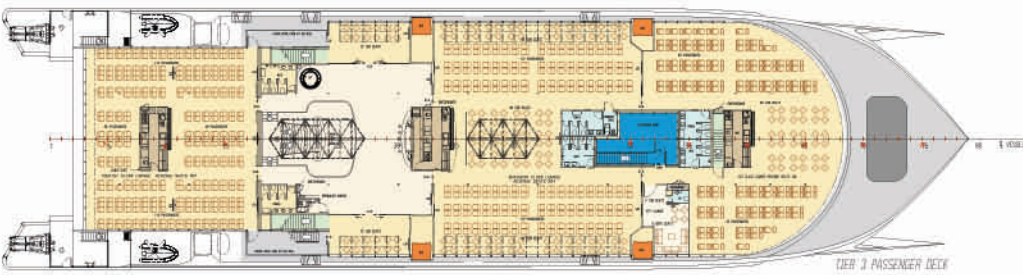
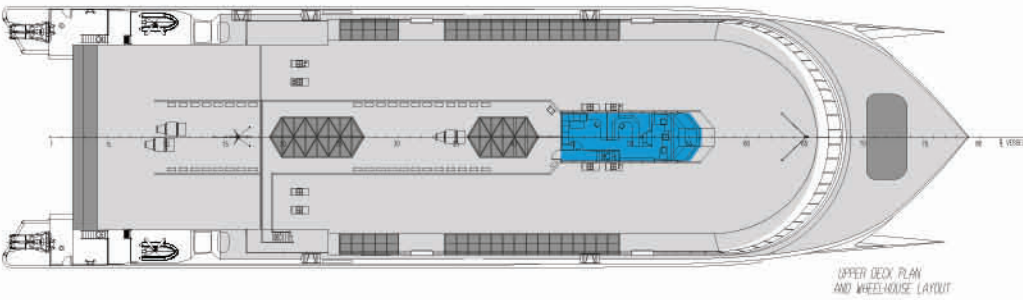
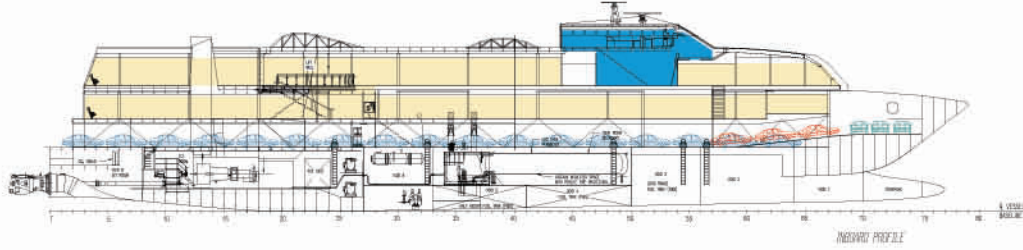
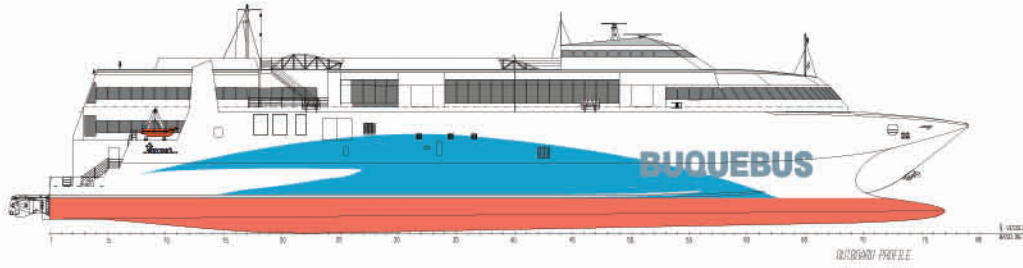


LNG BUQUEBUS

Incat is building what will be the world's first high speed Ro-Ro ferry to be powered by LNG as a primary fuel, and the design team of course commenced preliminary work several years ago. This is a relatively slow build period for our company however the engine delivery date to a large extent determines our completion date. Sea trials and delivery to our South American customer, Buquebus will be late 2012.

In the late 1980's Incat commenced building fast craft in lightweight marine grade aluminium even before the IMO's High Speed Craft Code was written. We're not unaccustomed to working with the authorities as new ground is broken.

Det Norske Veritas – DNV is working closely with Incat to ensure the strength and safety of the ship each step of the way however its likely there will be adaptations and additions to the High Speed Craft Code to which we generally build, to cater for the use of LNG in future HSC.



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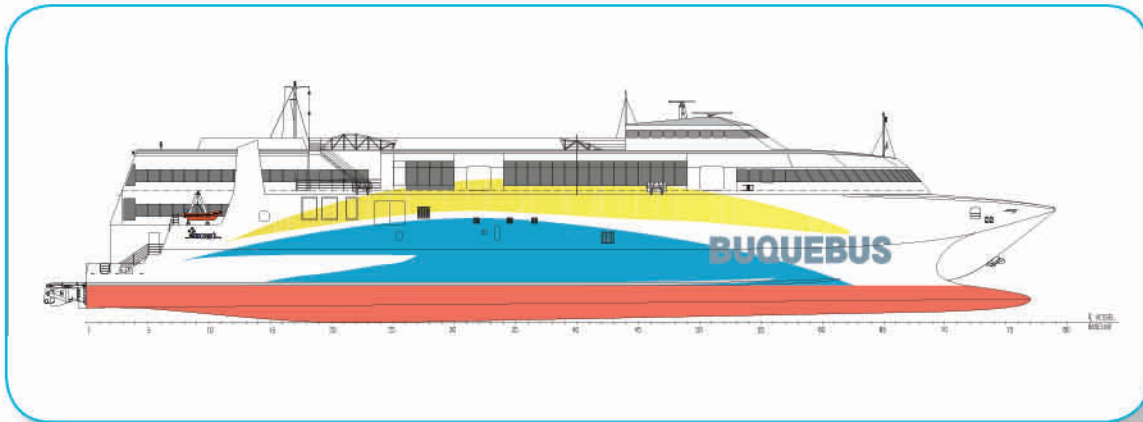
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Gearbox:
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99m WAVE PIERCING CATAMARAN



General Particulars

Yard No:	069
Designer:	Revolution Design Pty Ltd.
Builder:	Incat Tasmania Pty Ltd.
Class Society:	Det Norske Veritas
Certification:	DNV + IAI HSLC R4 CAR FERRY B GAS FUELLED EO
Length overall:	99.00m
Length waterline:	90.54m
Beam (overall)	26.94m
Draft (design)	2.98m
Deadweight:	450 tonnes
Speed:	47knots @ 450 tonnes deadweight, 100% MCR

Capacities

Passenger Capacity: maximum 1024 persons (passengers and crew)
 Tier 2 Passenger Deck is divided into three areas as follows:
 T2 Aft Lounge (Tourist Class) with seating areas and Bar/Kiosk.
 T2 Duty Free Shop lobby with Male/Female Toilets
 T2 Duty Free Shop.
 Tier 3 Passenger Deck is divided into four areas as follows:
 T3 Aft Lounge (Tourist Class) with seating areas and Bar/Kiosk.
 T3 Main Foyer with Reception Area, Business Lounges (P&S),
 Male/Female Toilets and Disabled Toilet/Mothers Room.
 T3 Mid Lounge (Business Class) with seating areas Bar/Kiosk,
 Male/Female Toilets.
 T3 Forward Lounge (First Class) with seating areas, Bar, VIP
 lounge and Male/Female Toilets.
 The Tier 4 wheelhouse and Tier 3 lower wheelhouse are accessed from
 the T3 Forward Zone.

Vehicle Capacity: 155 car spaces at 4.5m long x 2.3m wide.
 Tier 1 Vehicle Deck clear height: 2.3m
 Tier 1 Vehicle Deck: Axle load: 2.0 tonne per axle

Vehicle Access: Via shore based stern ramps across transom.

Tankage

Fuel Oil (main storage) 2 x 70,000 (approx) litres
 Fuel Oil (generator header tanks) 2 x 1,240 litres
 LNG (main storage) 2 x 40m³ litres
 Fresh Water: 1 x 5,000 litres
 Black & Grey Water: 1 x 5,000 litres
 E/R Oily Water: 2 x 160 litres
 Bilge Holding: 1 x 1,000 litres
 Aft Hydraulic Oil: 2 x 400 litres
 Fwd Midships Hydraulic Oil: 1 x 200 litres
 (Note: * denotes tank content excluded from deadweight)

Construction

Design - Two slender, aluminum hulls connected by a bridging section with center bow structure at fwd end. Each hull is divided into nine vented, watertight compartments divided by transverse bulkheads. Two compartments in each hull are prepared as fuel tanks with an additional compartment prepared as long range tank.

Air Conditioning

Reverse cycle heat pump units throughout capable of maintaining between 20-22 deg C and 50% RH with a full passenger load and ambient temperature of between 0 deg C and 35 deg C and 60 % RH.

Safety & Evacuation

Four Marine Evacuation Stations (MES), two port and two starboard, each MES capable of serving a total of up to 256 persons. A total of nine, 128-person open reversible life-rafts are fitted.

Machinery

Gas Turbines: Two (2) GE Energy LM2500 marine gas turbines rated at 22MW each.

Water Jets: Two (2) Wartsila IJX 1720 SR waterjets are configured for steering and reverse.

Gensets: 4 x Caterpillar C18 340 ekW generators fitted with marine brushless self-excited alternators, arranged for automatic start-up and paralleling, provide power for all passenger and ship services. The electrical control system considers one genset is maintained as a standby set.

GT Gensets: 2 x Caterpillar C9 200 ekW generators fitted with marine brushless self-excited alternators provide electrical power for gas turbine services. Each GT genset is considered independent.

Trim Control: A hydraulically operated trim tab is fitted at the aft end of each hull to allow adjustment of the running trim of the vessel.

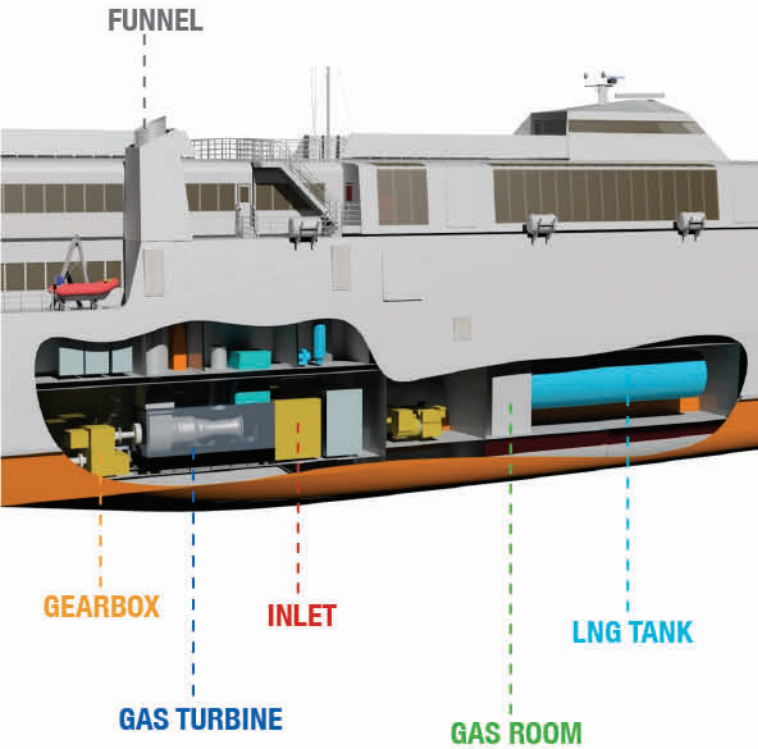
Hydraulics - Three hydraulic power packs, one forward and two aft, all alarmed for low level, high temperature, filter clog and low pressure, supply hydraulics for capstams, trim tabs, steering and stern ramp.

Electrical

Distribution - 415V, 50 Hz. 3 phase. 4 wire distribution with neutral earth allowing 240 volt supply using one phase and one neutral. Distribution via distribution boards adjacent to or within the space they serve. 200-amp 415V 3-phase shore power connection point fitted in starboard anteroom.

THE ENGINE ROOM

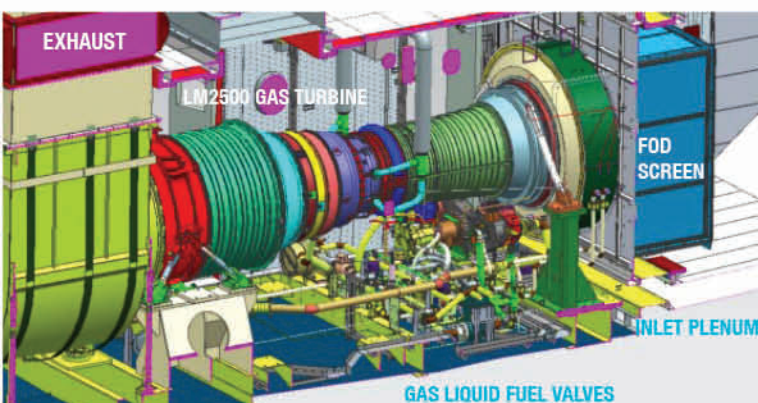
A cut-away of the engine room and fuel tanks indicate the layout of essential equipment. The engine itself is contained in a sound box which also provides a fire barrier.



GE AERO ENERGY DUAL FUEL MARINE GAS TURBINE PACKAGES

The power plant is fuelled by distillate to start, but after ten minutes when the heat exchangers have produced enough gas from the liquified gas in the main tanks the engine is changed over to gas fuel, this is an automatically controlled process that promises to be unfelt by passengers.

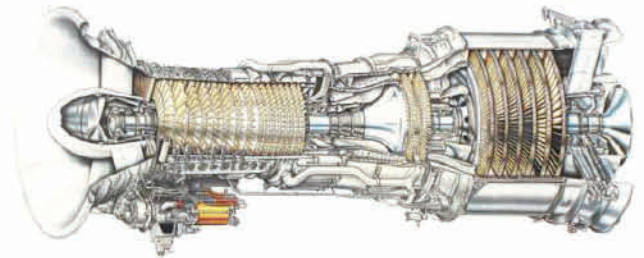
On arrival at the next port the engine will return to distillate fuel burn for the manoeuvring process.



LM2500 MARINE GAS TURBINE

The LM2500 is a single-rotor gas turbine with an aero-dynamically coupled power turbine. More than 1450 units have logged over 65,000,000 operating hours.

Dimensions:	l = 4.29 m, Ø = 1.52 m
Weight:	3266 kg
Compr. / HPT / PT:	16 / 2 / 6 stage
Combustor:	Annular
Compression ratio:	18 : 1
Output (ISO):	22,233 kW
Speed LPT:	500 - 3780 rpm
Fuel:	ISO 8217:1996(E) Class F DMX / DMA Natural gas
Reliability:	> 99.8 %

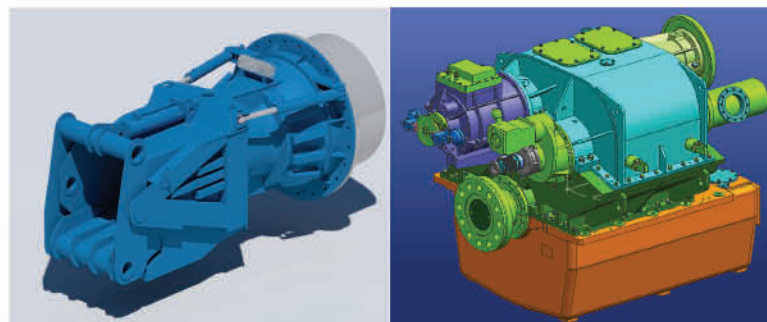


LNG FUEL TANKS

The fuel tanks will provide for up to four hours of high speed operation. Of course the fuel tanks and system has been designed for the specific route and refuelling requirements for our client.

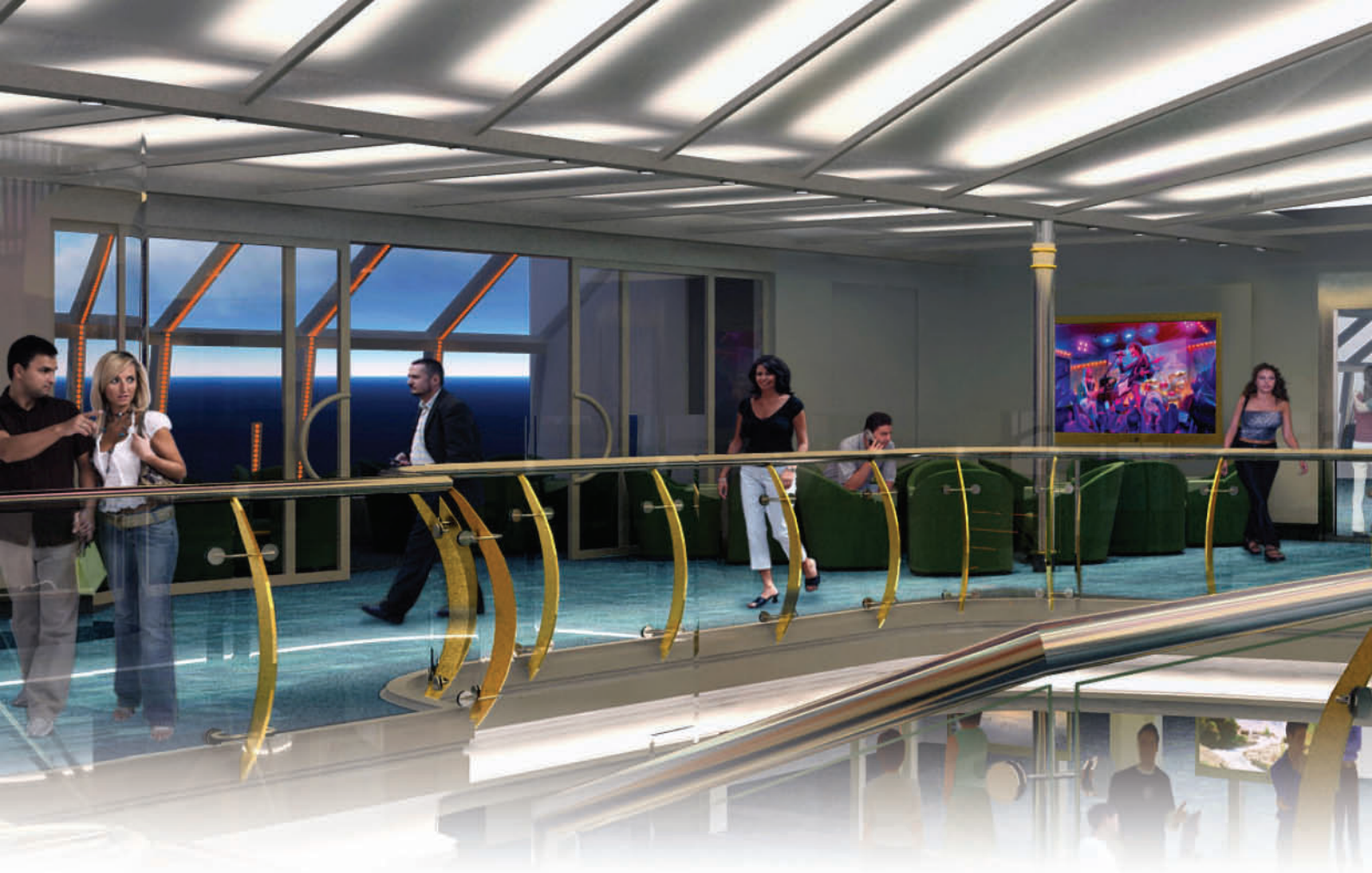
As a back-up long range distillate tanks are provided for auxiliary and delivery voyage use.

AUXILIARY MACHINERY



WARTSILA LJX WATERJET

RENK TYPE BUS 175 GEARBOX



Q. WHAT WILL OUR LNG FERRY LOOK LIKE?

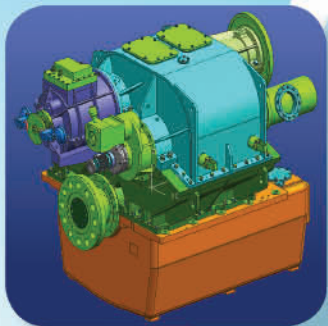
A. VISUALLY THE SAME AS PREVIOUS INCAT VESSELS





THE INTERIOR WILL BE SOMEWHAT MORE PLUSH THAN MOST WITH LOTS OF SPACE FOR PASSENGERS TO MOVE ABOUT





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For information on Incat representatives in your region contact head office.