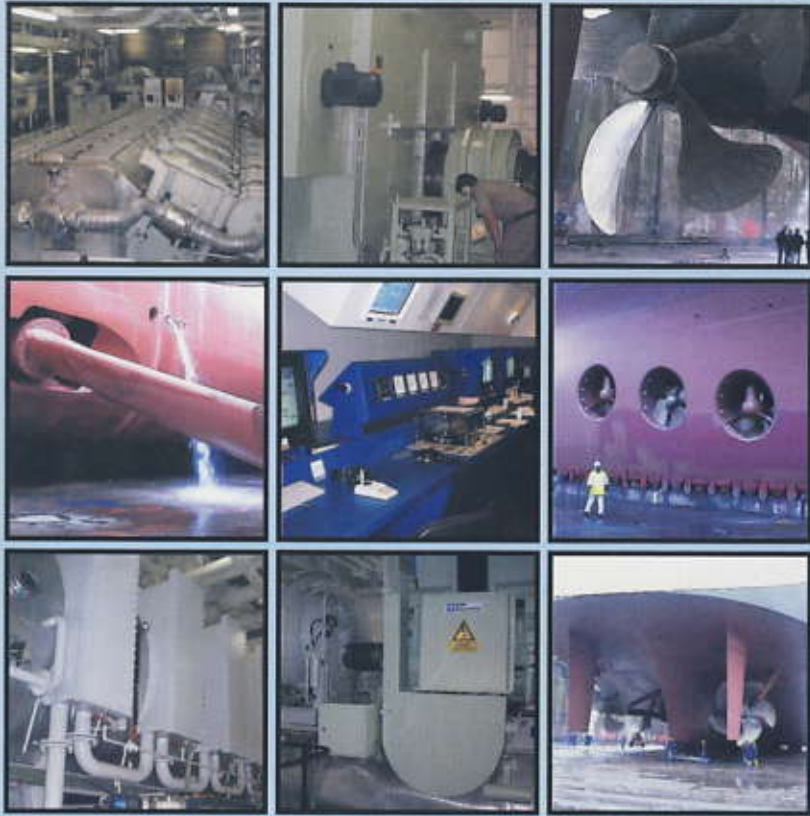


Technical Information



AURORA



The vessel is of the diesel electric type. In this type of installation all power is produced in the form of electricity at 6600 volts, 3 phase 60 cycles. The power management system distributes this to the main propulsion motors and the hotel systems as required. The number of diesel generators that need to operate are adjusted to meet the needs of a combination of the two.

Main Engines

Four M.A.N. B&W 48/60 Vee 14 cylinder medium speed diesel engines.

Each one drives its own alternator and can produce up to 14 megawatts of electrical power. Each piston is 480 mm in diameter with a stroke of

600 mm. The weight of each engine with generator is over 250 tonnes.



Main Drive Motors

Two electric motors, each of which, can develop up to 20 megawatts power per shaft at a maximum speed of 140 revolutions per minute. This gives the vessel a top speed of approximately 24 knots. The

weight of each motor is 180 tonnes and occupies a space 5 metres high by 5 metres long by 4 metres wide.



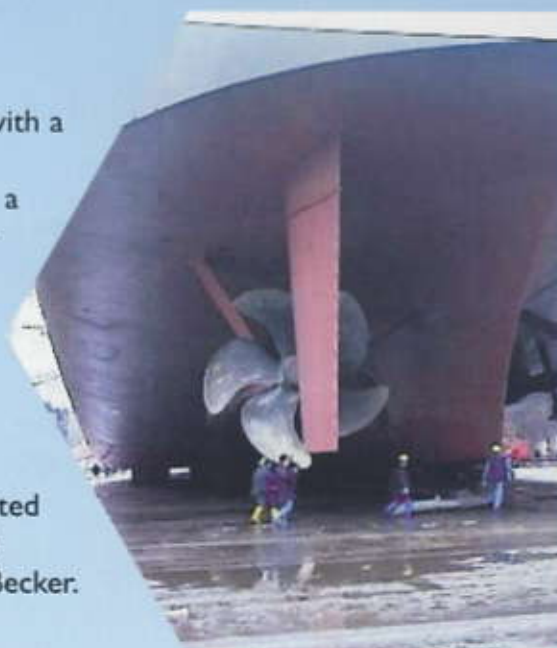
Propellers

Each shaft is fitted with a KaMeWa fixed pitch propeller made of a bronze material. Number of blades is 5 and tip to

tip diameter of the propeller 5.8 meters. Total weight of the propeller plus its hub is approximately 22 tons.

Rudders

Two fitted one behind each propeller able to be operated simultaneously or individually. Each capable of turning 45 degrees port to 45 degrees starboard. Manufactured by Becker. Size 7 metres high by 4 metres wide.



Thrusters

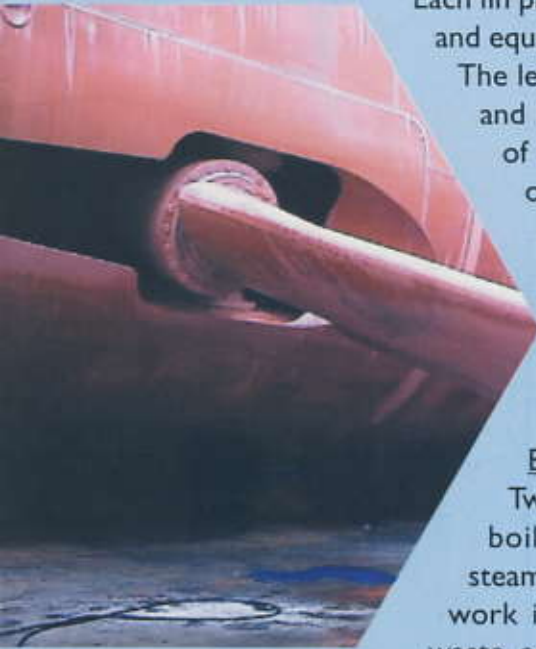
Three bow and one stern thrusters are fitted. Manufactured by Lips. Number of blades four and diameter of propeller 2.5 meters. Power of each motor 1.5 megawatts. Blades are controllable pitch to be able to thrust from port to starboard or starboard to port without changing the direction of rotation.

7. Stabilisers

Two stabilisers fitted one each side of the ship manufactured by Fincantieri of Italy.

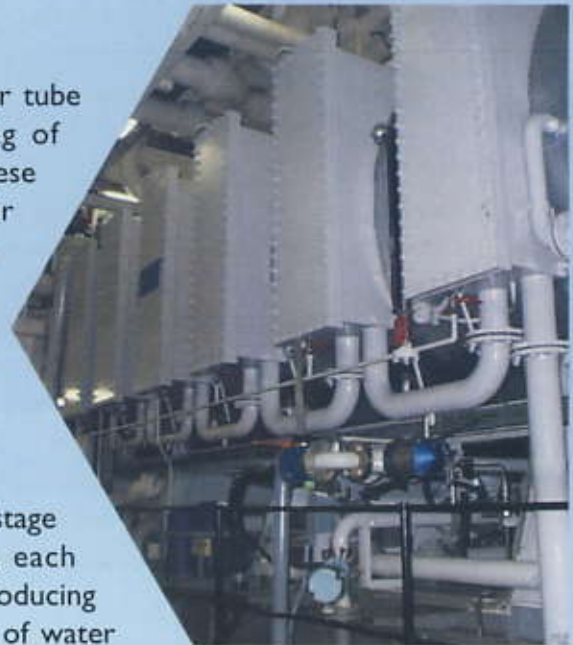
Each fin plus it's associated housing and equipment weighs 190 tons.

The length of the fin is 6.4 meters and has an effective working area of 19 square meters. The fins are operated by a hydraulic system controlled by a computer that senses the roll of the vessel, they can work to a maximum of 18 degrees either up or down and at 18 knots have a 88% roll reduction.



Boilers

Two Aalborg vertical water tube boilers producing 10000kg of steam per hour at 8.5 bar. These work in conjunction with four waste economisers that utilise the engine exhaust gas as a heating medium. Steam provides all heating requirements in machinery, hotel, and accommodation areas.



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Evaporators

Two Serck Como 6 stage flash evaporators, each one capable of producing up to 640 tons of water per 24 hours whilst the ship is at sea. Total production 1280 tons per day, average usage by entire ship per day approximately 650 tons. Primary heat for evaporator operation is supplied from the main engine cooling water. Total storage capacity 2076 tonnes.



Air Conditioning

Three main air conditioning machines. Manufactured and supplied by York Refrigeration. These operated by chilling water that is pumped around the ship to cool fresh air in

various handling units. There are 70 separate air-handling units on the ship supplying all spaces except machinery spaces. The air conditioning equipment is one of the prime users of electrical power on the ship. In tropical conditions up to 50% of the ships electrical load could be used by the air conditioning plant. This is up to 4.5 MW.

Refrigeration

A provision refrigeration plant is designed to keep the various food and stores on board at the correct temperatures. There are 7 deep freeze rooms, 44 chill rooms, over 150 separate bar, service pantry and galley refrigerators, 40 ice making machines. Refrigerated storage space is approximately 3000 cubic metres.

Fuel system

Total capacity of fuel is 2774 tonnes. Average daily consumption at 20 knots is approximately 160 tonnes. All fuel consumed is heavy fuel oil and the maximum of viscosity of fuel we use is 380 centi stokes, and is heated to 130 degrees Celsius before use in the engines. Average consumption at 20 knots is 330-litre/nautical mile.

Garbage

All waste disposal is performed with state of the art equipment and in full compliance with all current international regulations. Items landed, to approved contractors for disposal, are what cannot be processed via our incinerators.

Certain waste that is recyclable is landed to reception facilities on a regular basis such as aluminium cans etc.

Overall plant control

A Siemens I.A.M.C.S. 55 monitoring and alarm system covers the entire vessel with the Engine Control Room as the primary monitoring station.

Here, where staff are on watch 24 hours per day, all equipment and systems in the vessel are overseen.

These vary from essential safety and propulsion systems to the condition of the swimming pools.

A 100% redundancy is built in via two independent "data bus" and over 11000 separate alarm points are connected to 45 process stations at various locations around the vessel.



Departmental complement

- 23 Engineering and Electro - Technical officers.
- 3 British Chief Petty Officers.
- 27 Filipino fitters and technicians.
- 4 Filipino motor men.
- 5 Filipino waste disposal operators.
- 8 Filipino wipers.

The complement performs all technical watch keeping and maintenance of duties in the vessel consisting of mechanical, electrical, electronic, computing, refrigeration, air conditioning, plumbing, carpentry, and internal decoration.