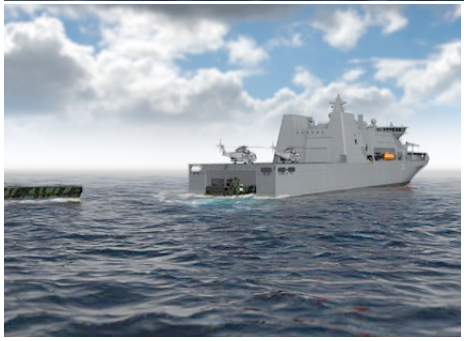
ELLIDA®

A range of naval multi-role logistics ships



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Introduction

BMT's ELLIDA® platform is the logistic and transport element of BMT's naval auxiliary ship design range.

ELLIDA® is a multi-role logistics ship, designed to provide the capabilities to support global operations for naval and amphibious forces. It offers the flexibility of a large hull, with internal vehicle and stowage decks, weather deck stowage and additional accommodation combined with features for offload in operations by sea and air.

Our auxiliary ship design range

Drawing on BMT's extensive experience in the design of auxiliary and amphibious platforms, the ELLIDA® family has been developed to offer a cost effective solution for logistics support and amphibious operations. ELLIDA® includes spaces that can be configured - either in-service, by re-role or by batch during build - to serve different functions.

Functions include:

- Amphibious offload of embarked land forces;
- Strategic transportation of vehicles and bulk military material;
- Medical support, providing Role 2 or up to a Role 3 medical capability;
- Contingent operations, including Humanitarian And Disaster Relief (HADR) and Non-Combatant Evacuation Operations (NEO);
- Logistics support, primarily for solids replenishment of other naval platforms or for deployed land forces.

AEGIR®Replenishment Ship

Logistics and replenishment at sea for fuel or fuel stores & munitions at sea.
In service with the UK RFA & Royal Norwegian Navy.

ELLIDA® Logistics Ship

Transport of vehicles and stores, amphibious operations and medical support.

SALVAS® Utility Auxiliary

Repair & salvage, diving & submarine rescue, hydrographic, intelligence gathering, coastguard, policing & logistics.

A family of tailorable designs

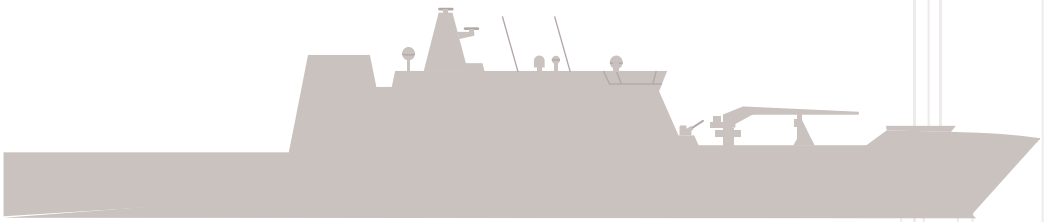
Recognising the wide variety of missions and operational context for this type of vessel, BMT has developed a family of solutions which can be used as the basis for tailoring individual ship designs for our customers.

Initially this family includes two hull variants: the large ELLIDA® 200 multi-role platform and the smaller ELLIDA® 130 amphibious support ship.

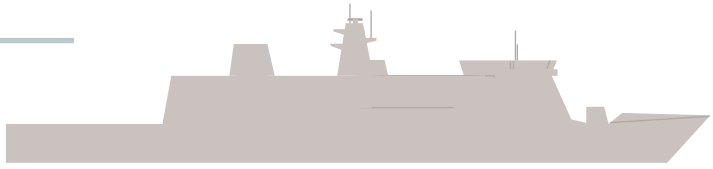
The ELLIDA® 200 represents the larger design, with significant flexibility and tailorable spaces. It has crew accommodation which can be equivalent to civilian standards, recognising that some navies operate jointly with civilian crews, and can accommodate and support an embarked force in excess of 300 troops alongside the crew for deployments.

The ELLIDA® 130 is a smaller, more focused amphibious platform designed for a naval crew and able to conduct a range of naval operations. Amphibious capability includes deployment with in excess of 120 troops in suitable accommodation, as well as retaining the ability to deliver troops and / or vehicles by sea and air.

ELLIDA®-200



ELLIDA®-130



Graphic showing relative size as above

Cargo logistics options

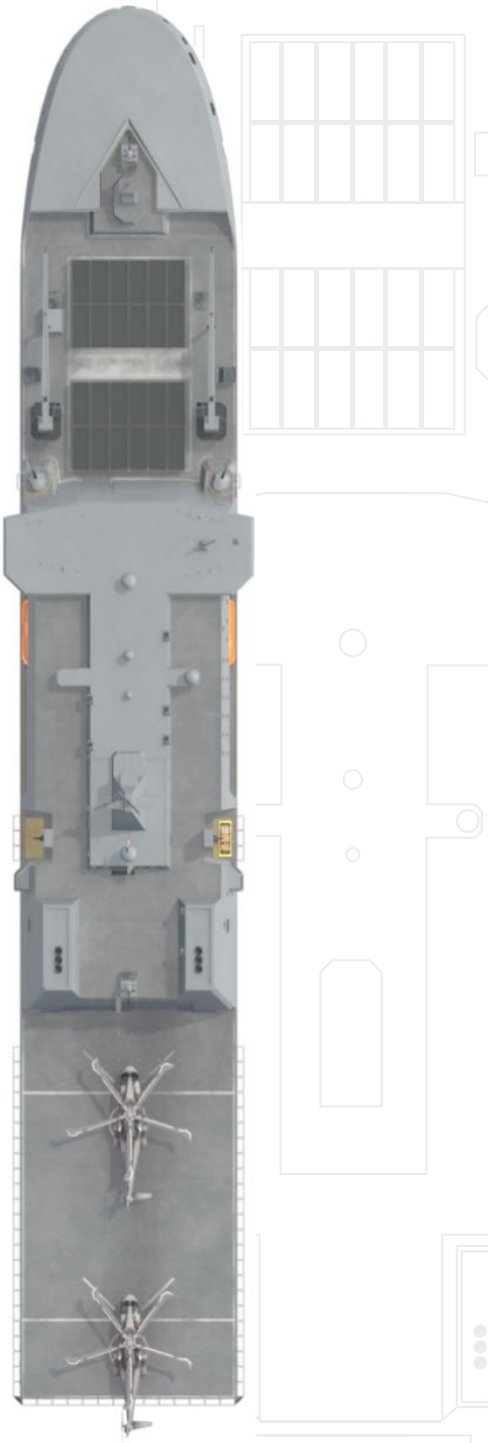
In a Logistics Support role, ELLIDA® will provide stowage and logistics for military Operational Stock for land forces as part of a Sea Basing capability or as a deployed single unit.

It will be capable of supporting other naval assets with solid support via Replenishment at Sea (RAS) supply facilities or via VERTREP. ELLIDA® could also be capable of delivering forward engineering support to both naval assets and land forces.

The ELLIDA® design is provided with an enclosed vehicle deck, ranging from 300 LIMS up to 700 LIMS, which can be utilised for the transport of military vehicles or arranged with containers for modular capabilities. The vehicle deck is accessed by a side door and ramp for drive on / drive off and vehicles can directly access landing craft in the dock aft or on the larger versions a ramp is provided up to the weather deck stowage areas and flight deck to provide further light vehicle stowage capacity. The weather deck stowage for the ELLIDA® 200 can accommodate up to 24 single stack containers or the equivalent of a further 200LIMS.

The ELLIDA® 200 also features a lower hold space. This may be tailored as either a lower vehicle deck adding a further 176 LIMS of light vehicle stowage or alternatively it may be configured as cargo hold space for embarked forces or fleet re-supply.

The larger ELLIDA® 200 can feature a replenishment at sea capability with port and starboard delivery stations. Utilising the lower cargo hold to accommodate stores or additional fuel tankage or even containerised cargo on the vehicle deck, the ELLIDA® 200 can provide replenishment support functions as an additional role.



Enhanced medical capabilities

The provision of enhanced medical capabilities is a key aspect of future naval thinking as it provides:

- An improved duty of care to a navy's personnel;
- Support to 'grey zone' and non-warfare operations that may lead to casualties;
- Support to regional and global humanitarian and disaster relief operations;
- Support to civilian authorities in emergencies.

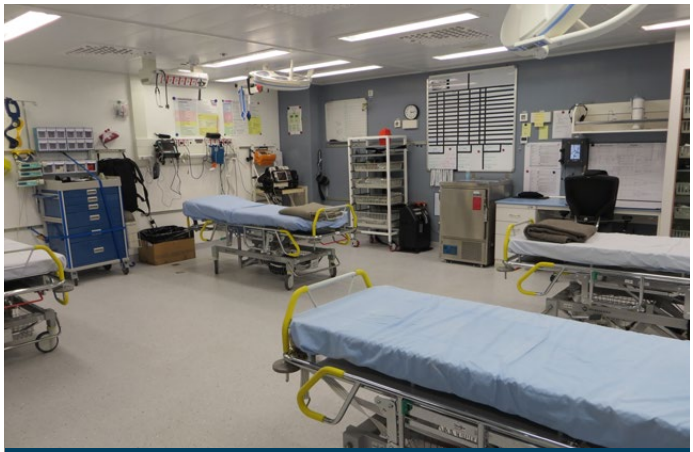
In order to adequately support land forces ashore and other naval assets, dedicated medical facilities would be provided. This should include appropriate casualty routes from the points of embarkation / disembarkation (flight deck, boat bays and well dock) to the medical facility.

This medical provision may be extended to provide a Role 3 medical capability, providing enhanced levels of care, including a CT scanner, operating theatres, intensive care wards, low dependency wards and isolation wards, alongside laboratory facilities, consultation rooms and dental facilities.

The ELLIDA® platforms have therefore been designed with the ability to provide a range of enhanced medical capability options including NATO Role 2 or Role 3 category solutions. This is based on BMT's heritage in supporting the medical capability of the RFA and the design of the 40 bed Role 2plus facility embarked on the Norwegian logistic support vessel HMNoS MAUD.

The ELLIDA® 200 design includes a Role 2 capability as a baseline but this maybe expanded for more tailored designs. The ELLIDA® 130 includes a 3 bed ward medical facility with resuscitation facilities.

A design study for a 100 bed hospital ship based on the ELLIDA® 130 has also been developed to provide a dedicated medical ship, providing a full range of medical capabilities including 3 operating rooms, intensive care wards and isolation wards.



Medical facilitates on a BMT designed naval ship.

Effective amphibious operations

When operating in a dedicated amphibious role, ELLIDA® will be able to transport and deploy follow-on forces, subsequent to the initial assault to secure a beachhead deployed by other assets or conduct unopposed amphibious landings.

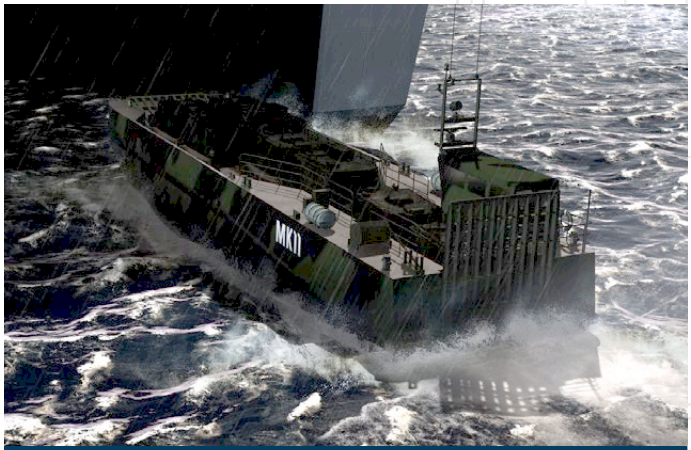
These follow-on forces could include land forces support echelons and heavier equipment such as that required by Fires and the large capacity of ELLIDA® is well-suited to the transport of this material.

The ELLIDA® design makes provision for a well dock to be incorporated within the stern of the vessel for the stowage and operation of two landing craft. The ELLIDA® 200 can accommodate two BMT CAIMEN® 90 fast landing craft (LCU) whilst the ELLIDA® 130 can accommodate two BMT CAIMEN® 60 fast landing craft (LCM) type. Both versions also accommodate smaller davit launched personnel landing craft.

Internal troop embarkation routes are planned to allow amphibious operations by boat or aviation or both. Both variants have provision for embarked troop planning and operations spaces and enhanced communications can be fitted.

All versions incorporate organic aviation facilities, which may be tailored. The ELLIDA® 130 has a single spot aft and a hangar for one or two medium helicopters depending on type. The ELLIDA® 200 has a two spot flight deck and can be configured with options such as a single organic helicopter hangar and temporary stowage for the transport of up to three further helicopters, or a larger hangar for two or more helicopters.

ELLIDA®



CAIMEN®

Well suited to humanitarian operations

As a large platform with significant re-role space, ELLIDA® will be well suited to support contingent operations such as Humanitarian And Disaster Relief (HADR) and Non-Combatant Evacuation Operations (NEO).

ELLIDA® has the capability to poise and remain in a theatre of operations for a prolonged period in support during hurricane / typhoon / monsoon seasons as required by operational tasking.

In a HADR operation initial offload of aid supplies may be conducted by surface and air manoeuvre, with the ELLIDA® platform at sea at a safe distance from shore. Once a safe port can be established and assured, the platform may move alongside to better support the offload of supplies.

Flexible propulsion options

The ELLIDA® design is a twin shaft ship which features medium speed diesels and diesel generators for efficiency and reliability.

Two engine rooms are provided, and Classification Society redundant power and propulsion notations can be applied, for example LR PSMR*.

Alternatively, a hybrid diesel / diesel electrical power and propulsion solution may be adopted based on the successful power and propulsion system in-service with the UK RFA Tide Class replenishment ships. Two hybrid electrical machines replace two of the diesel generators in this configuration, offering improved operating efficiency through electrical drive and shaft generation modes.

Experienced naval support ship design

The ELLIDA® design benefits from BMT's experience in the design of naval auxiliaries and warships.

The designs would be developed against naval classification rules (e.g. Lloyds Register, DNV / GL) and would follow the certification regime outlined in ANEP-77 to ensure the safety of the crew, embarked personnel and the wider environment.

Adoption of international rules would be tailored according to the requirements and these can include civilian crew, IMO MARPOL Annex VI Tier III compliance and IMO Water Ballast Rules.

RFA Tidespring

HNoMS Maud LSV

Summary

The ELLIDA® family of designs has been introduced to complement the other BMT naval auxiliary designs and offers a high degree of design flexibility for the transport and deployment of vehicles, troops and modular support capabilities.

The basis designs can be tailored to specific requirement sets or flexibility retained through the large vehicle deck, holds and weather deck stowage.

The design builds on BMT's successful delivery of innovative auxiliary ship solutions to the Royal Fleet Auxiliary and overseas navies.

About BMT

BMT is the leading independent centre of engineering design, support and technical services for defence customers.

From concept design to acquisition support, in-service design and technology management, BMT is known for its innovation, expertise and ability to tackle the most complex design and systems issues.

BMT has a strong track record in naval platform design for surface warships, submarines and auxiliaries together with extensive acquisition support experience within land and maritime domain projects.

BMT employs over 700 specialists and support staff in defence and security markets. Its people include systems engineers, combat systems engineers, naval architects, marine engineers and software developers.

BMT

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