CASE REPORT NAVY

 Contractor: Damen Schelde Naval Shipbuilding
 Owner: Royal Moroccan Navy

SIGMA Frigates FMMM

Heating  Ventilation  Air Conditioning  Refrigeration

OUTSIDE 35°C  HUMIDITY 90%
22°C Inside

Provided by HEINEN & HOPMAN
DESCRIPTION OF THE PROJECT

The three SIGMA-class frigates for the Royal Moroccan Navy have been designed according to Damen Schelde Naval Shipbuilding’s revolutionary Ship Integrated Geometrical Modularity Approach (SIGMA) and are a further development of the SIGMA-corvettes for the Moroccan Navy. The SIGMA approach applies modularity in many areas, which offers the user great flexibility at reduced costs.

The frigates are also known as “FMMM”, which stands for Frégates Multi-Missions Marocaines. The first frigate is longer than numbers two and three, to accommodate a VIP-crew and command facilities.

The vessels are built according to Lloyd's Register Class for unrestricted service and are enhanced by proven naval principles.

The superior propulsion and sea keeping capabilities make the SIGMA class frigates perfectly suited for operations in Moroccan territorial waters. Basic functions are maritime patrols and surveillance in the Territorial Waters and EEZ. In addition fishery protection, prevention and protection of natural resources, maritime search and rescue as well as the assigned constabulary tasks in law enforcement at sea will belong to the vessels capabilities.

A helicopter deck and hangar for helicopters with a maximum weight of 5 tonnes, with lashing points and refuelling system is provided (landing and take-off up to 9 tonnes). Heli operations can be performed at day and night.

ORGANISATIONAL CHALLENGES (among others)

Vessel is part of the SIGMA family, which is a programme by DSNS to build vessels from modular parts. This means that during design we have to keep in mind that the solutions chosen will be used in future projects and that we need to use solutions from previous vessels were possible.
SCOPE OF SUPPLY

Accommodation & Hull

- Air intake systems for HVAC
- Air Handling Units 2x
- Fan coil units 12x
- Refrigeration equipment 2x
- Central heating system 2x
- Axial fans
- Air filters
- Exhaust hoods
- Duct heating & cooling coils
- Dampers
- Sound attenuators
- Supply & extract ornaments
- Heaters
- Provision cooling system 2x
- HVAC control systems 2x
- HVAC instrumentation
- Combat cooling system 2x
- Gravity cooler

Total capacity 27,000 m³/h
Total capacity 700 kW
Total capacity 175 kW
Total capacity 3,5 kW
Total capacity 100 kW
Total capacity 2.2 kW

SCOPE OF WORK

Design & Engineering
Project management
Custom built production
Installation & Implementation
Supervision
Commissioning
Heinen & Hopman encourages a more sustainable world. By providing eco-friendly solutions and services we offer our clients the option of reducing energy consumption and thus CO2 emissions. Visit greenmanifest.info for more information.