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INTERMARINE/RODRIQUEZ

Presentation

made by

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intermarine spa
a Rodriquez Company

Shipbuilding activities of

Intermarine / Rodriquez Group

intermarine spa
a Rodriquez Company

"Intermarine" Shipyard
ITALY
Rome
Adriatic Sea
Tyrrenian Sea
Messina Shipyard
Mediterranean Sea

Intermarine Rodriquez Group

- Fast Ferries

- Mega Yachts

- Military Vessels

Fast Ferries

Design and construction of **Fast Ferries** is historically the field of excellence of Rodriquez Cantieri Navali.

Most of them are built in **Aluminium**, but also **Steel** is often used.

In the recent past Rodriquez has built a large number of Fast Ferries in the range 40 to 115 meters. Nowadays operators are focusing on fuel savings, and Fast Ferries are becoming “slower”.

Due to the above Rodriquez production is today focused on vessels in the range from 40 to 70 meters, where speed is still a “plus”.

Stabilized **Fast Ferries** are built in **Steel or Aluminium**, in the range 40 to 70 meters.

Main Characteristics

- 52 m
- 4 x 2465 kW MTU 16V 4000 M71
- Approx 40 knots
- 200 pax (100 + 100 rescued)

WAVE PIERCING CATAMARAN

RESCUE VESSEL FOR THE ROYAL OMAN POLICE

Main Characteristics

- 52 m
- 4 x 2465 kW MTU 16V4000 M71
- Approx 40 knots
- 100 pax

WAVE PIERCING CATAMARAN

SOUTH VESSEL FOR THE NATIONAL FERRY COMPANY OF OMAN

Hydrofoils

Rodriquez has been a pioneer in design and construction of Hydrofoils: in 1956, in fact, Rodriquez launched the world's first commercial hydrofoil.

Since then Rodriquez has been a leader in such vessels, which are still today built and used for passenger transportation on short distances.

All hydrofoils are built in **Aluminium:** their typical size is in the range 20 to 40 meters, and the carrying capacity is typically between 150 and 240 passengers.

Stabilised **Hydrofoils**, carrying up to 240 passengers, are built in **Aluminium,** in the range 20 to 40 meters.

New Fully Submerged Wing Hydrofoil

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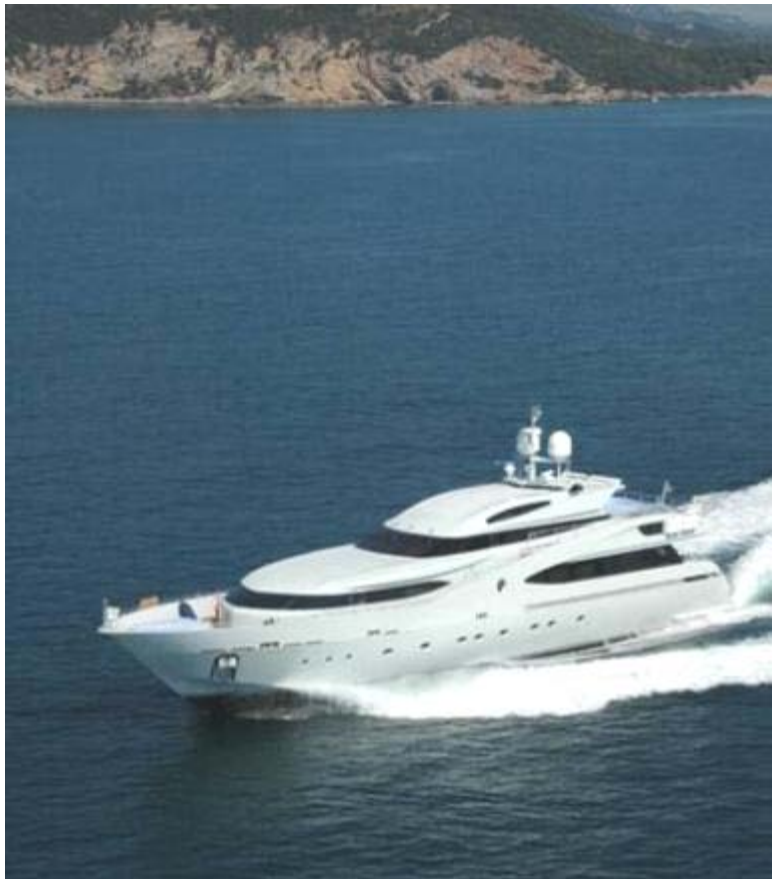
This application to the civilian field of a technology previously developed for the Defence Market, but modified in the light of current requirements by operators, will allow a high reduction of fuel consumption and a significant increase of passenger per fuel ratio.

Length Overall (LOA)	37.25 m
Speed	46 knots

Mega Yachts

Both Rodriquez and Intermarine have been producing Mega Yachts, although today the design and production is taken care by the Yacht Division of the Group.



118’ Wally Power for Wally Yachts

118’ m MY built in advanced composite material with three gas turbines, three waterjets and speed in excess of 60 knots

Signature Series 40 – Norman Foster Design

Military production

Military production is historically the field of excellence of **Intermarine**.

Originally established as a shipyard specialised in

design and construction of vessels in composite materials,

Intermarine today builds all the military vessels of the RCN

Group, **in composite materials, aluminium and steel**.

Military production

Military production is mainly focused on:

MCMVs

(in Composite material, FRP)

FPBs and OPVs

(in Composite material or Aluminium)

Hydrographic vessels

(in Composite material, FRP)

Fast Patrol Boat Production

Since the beginning of its activity Intermarine has built tenth of **FPBs** for Navies, Coast Guards, Maritime Customs and Maritime Police in Italy and abroad: the design of such FPBs is characterised by an high level of flexibility, allowing to tailor each craft to the specific need of the Customers.

In the past Intermarine has been able to propose to his End Customers both aluminium and composite crafts.

At present Intermarine FPB production is mainly focused on the followings:

V2000

13.2 m FPB built in balsa sandwich with skins in Carbon and GRP.

2 engines – 920 kW

Speed : 45 knots

40 vessels built, 35 vessels under construction

V5000

16.5 m FPB built in Kevlar and GRP.

4 variants with different propulsion systems.

Speed between 30 and 60 knots depending on installed power

10 vessels built

22m

22 m FPB, built in GRP.

2 engines – 2600 kW

Speed > 30 knots

Armament: 1 x 12.7 mm gun

3 vessels built, 20 vessels under construction

CP25

25 m FPB, built in Aluminium.

3 engines – 2700 kW

Speed : 35 knots

No armament

10 vessels built

MV85

28 m FPB, built in GRP.

2 engines – 5500 kW

Speed > 40 knots

Range: 800 nm

Armament: 30 mm or 12.7 gun

12 vessels built, 10 vessels under construction

MV115

37 m FPB, built in GRP.

2 engines – 5500 kW

Speed > 35 knots

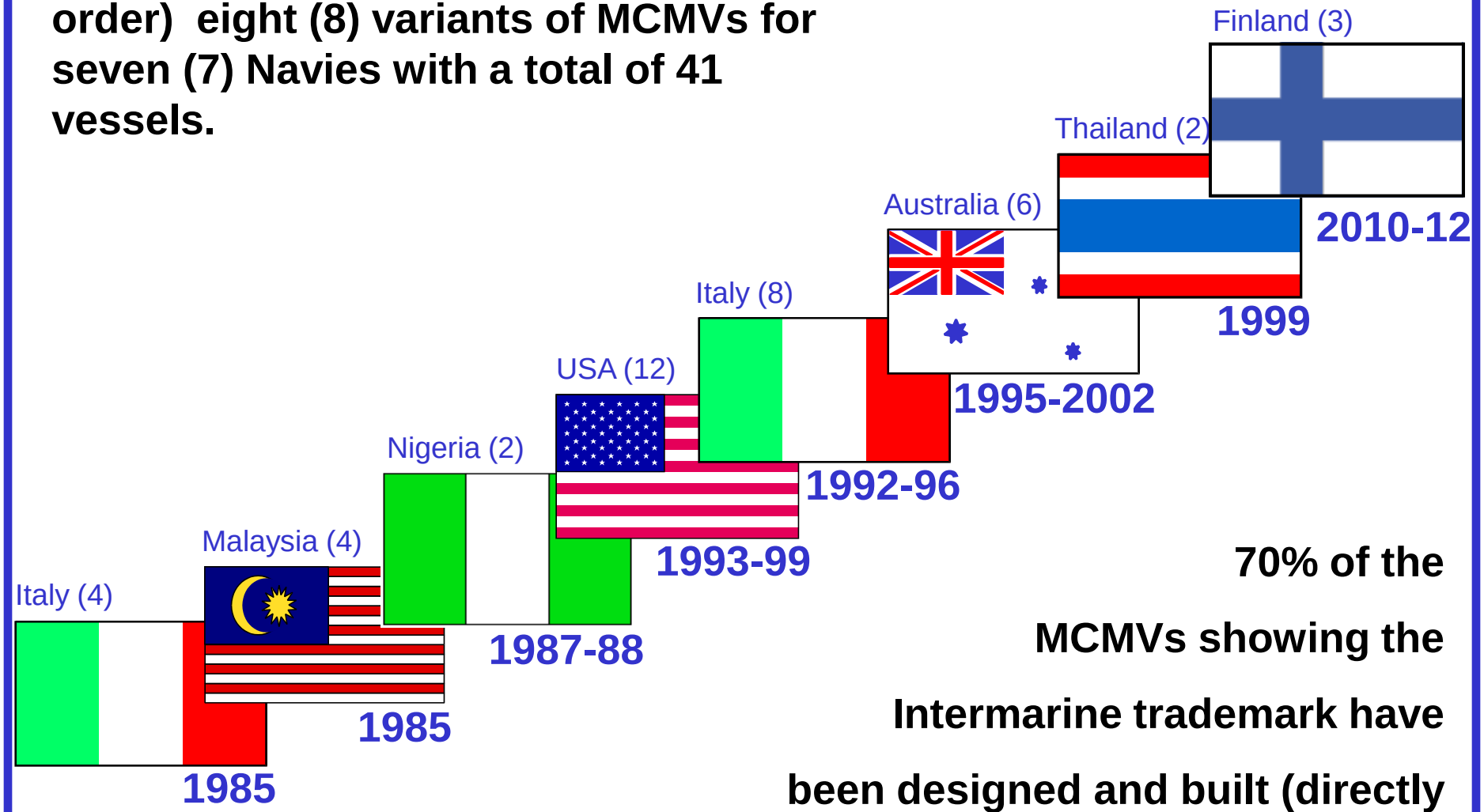
Range: 1200 nm

Armament: 30 mm gun

7 vessels built

The name Intermarine is historically linked to the design and construction of sophisticated Mine CounterMeasure Vessels.

Intermarine has delivered (or has on order) eight (8) variants of MCMVs for seven (7) Navies with a total of 41 vessels.



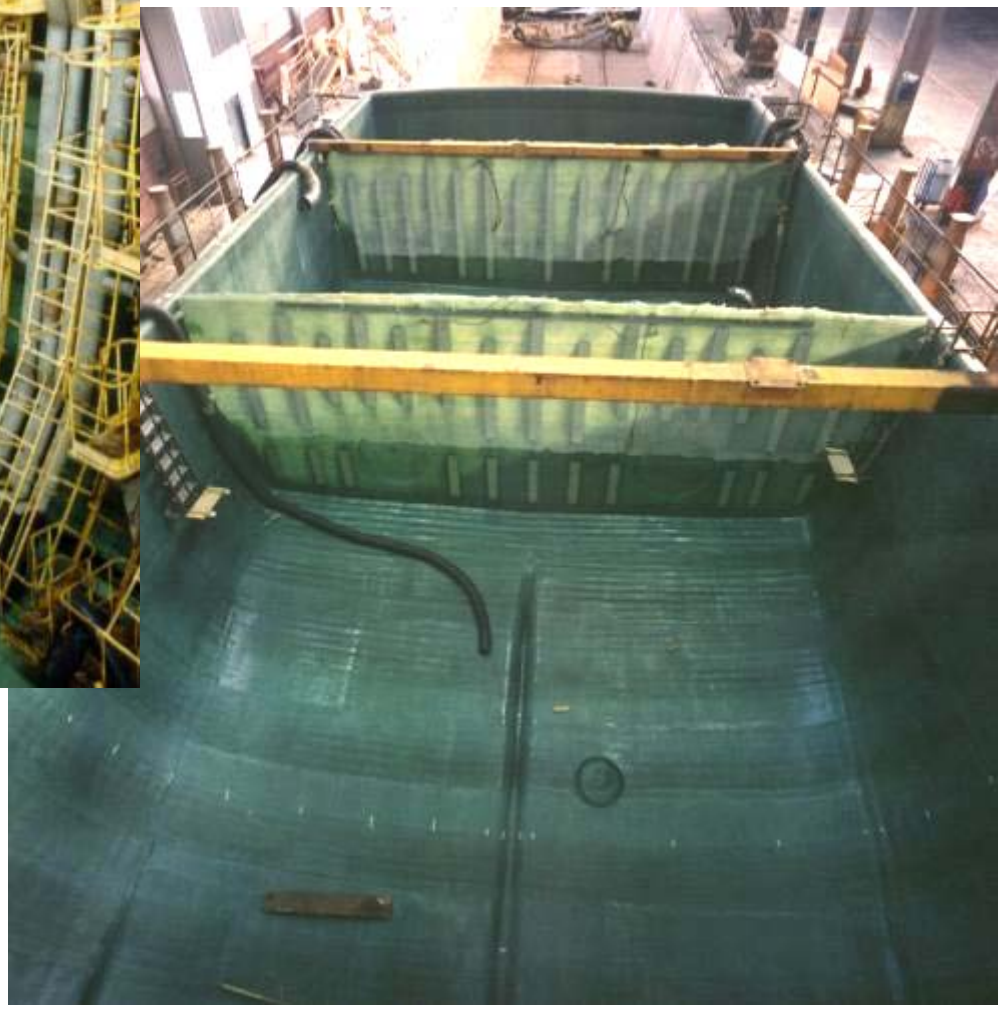
70% of the MCMVs showing the Intermarine trademark have been designed and built (directly or under licence) for a foreign Navy.

Being the ship hunting detection capability and the sweeping clearance percentage always less than 100%, the driving consideration of the MCMV design is that, **during both minehunting or minesweeping operations the risk to pass very close, or over, a mine is always very high.** Consequently it was absolutely essential that the platform carrying MCM equipment **be of reduced signatures in respect of influence mine sensors** and **be highly resistant against underwater explosions** to withstand possible mine explosions.

Instead of optimising a vessel reproducing a copy of the traditional structural design and construction technique, Intermarine concentrated its attention and researches on the dynamic analysis of underwater explosion phenomena of non-contact mines, **so to assess the optimal features of a floating "body" invested by the shock wave**.

Such an approach led to the development of:

- a new concept of hull construction (the so-called **“Monocoque Single-skin without reinforcement”**),
- Development of **new raw materials** (being those available at that time not suitable for the implementation of the Intermarine construction technique).
- Implementation of **revolutionary outfitting techniques** (such as the installation of the engines in cradles suspended between bulkheads),



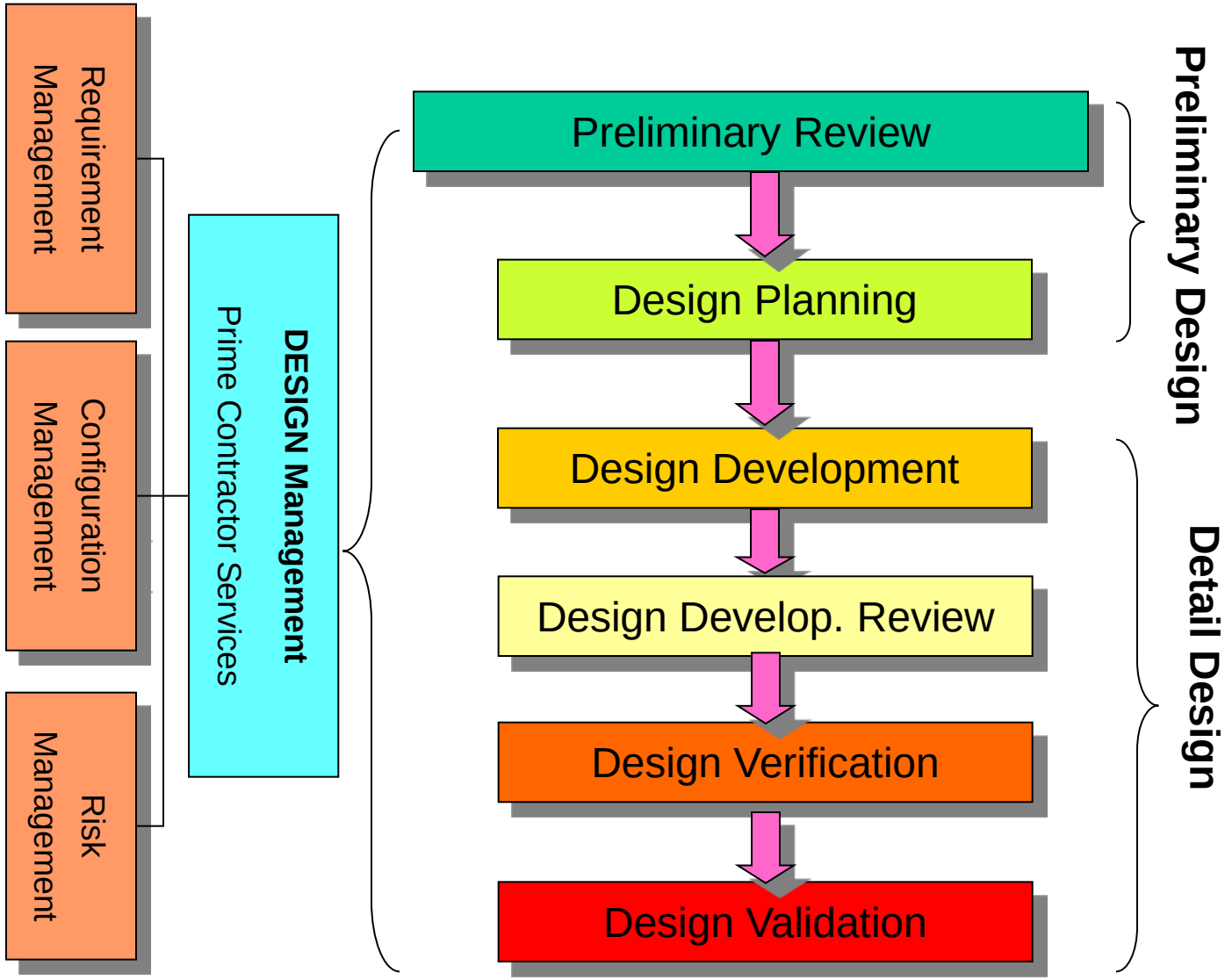
Intermarine Quality System

The Intermarine **Quality System** has been basically developed to meet the severe requirements for MCMV's laminate Quality Assurance and for complying with the requirements of prestigious Clients.

Intermarine is accredited for a Quality Assurance and Configuration Management **ISO 9001,** and works in accordance with the requirements of **AQAP 2110**.

Intermarine is also accredited for an Environmental Protection Management System according to the requirements of: **ISO 14001**

Design Process



REQUIREMENT MANAGEMENT
Requirements LifeCycle

Project Request

Product Accepted

Live Cycle Level: *UR*
CONTRACT PHASE
USER REQUIREMENTS DEFINITION

Verification Test Plan / Accetance TestT

Live Cycle Level: *AT*
ACCEPTANCE TEST PHASE
PRODUCT ACCEPTANCE TEST PLAN

Live Cycle Level: *SR*
SYSTEM DESIGN PHASE
SYSTEM REQUIREMENT DEFINITION - REFINEMENT

Verif. Plan / Sys. Test – Integ. Test

Live Cycle Level: *ST*
SYSTEM INTEGRATION TEST PHASE
INTEGRATION VERIFICATION TEST PLAN

FAT - HAT
INTEGRATED
Subsystems TEST

Live Cycle Level: *TS*
TECHNICAL DESIGN PHASE
TECHNICAL SPECIFICATION DEFINITION - REFINEMENT

Verif Plan / Unit Test

Live Cycle Level: *UT*
UNIT TEST PHASE
SUB ASSEMBLY VERIFICATION TEST PLAN

FAT
Modules & Assembly

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DESIGN DEVELOPMENT

ANALYSES

- HYDROSTATIC & HYDRODYNAMIC
- STRUCTURAL & SHOCK
- NOISE & VIBRATION
- MASS PROPERTIES
- MAGNETIC
- EMI/EMC

Shock Control Plan → STRUCTURAL & SHOCK

Noise Control Plan → NOISE & VIBRATION

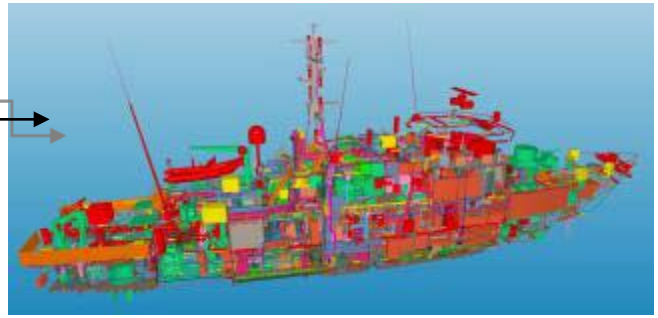
Magnetic Control Plan → MAGNETIC

EMC Control Plan → EMI/EMC

DRAWINGS

- 3D MODEL
- STRUCTURAL
- ARRANGEMENTS
- DIAGRAMMATICS
- OUTFITTING
- COMPOSITE DRAWINGS
- ……..

STRUCTURAL → 3D MODEL



SPECIFICATIONS & PROCEDURES

- PURCHASING SPECIFICATIONS
- WORK PROCEDURES
- EQUIPMENT LISTS/DBs
- ……..

- THE EVOLUTION IN THE BUILDING TECHNOLOGY -

The superstructures of the new Finnish Navy Minehunters take advantage from a new building technology: **the vacuum infusion.**

This is one of the greatest part ever built in the world with this technology: a plastic layer is secured to the surface of the fibreglass building, thousands of piping are deployed for removing air and infuse the resin.

The main advantages of this technology are the followings:

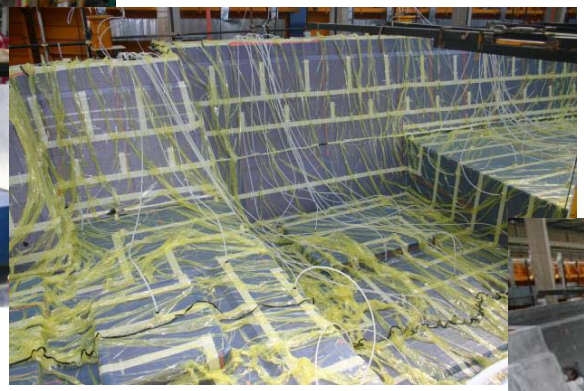
No pollution risk for personnel

Improved mechanical characteristics

Improved production process

- THE EVOLUTION IN THE BUILDING TECHNOLOGY –

Infusion process



Thank you for your attention