



Replacement of the RV Belgica built 1984

Feasibility study

Royal Belgian Institute Of Natural Sciences – "RBINS"
Management Unit of the North Sea Mathematical Models – "MUMM".

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Belgica 26 years old

2009 Feasibility study (1st approach)

Major refit of the present Belgica or new built taking into account
the outcome of the science missions inquiry (Costs estimates)

OUTCOME of this feasibility study is clearly new built

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SCIENCE MISSIONS REQUIREMENTS for the next decade(s) in a national and international context

I Determination of the needs on the national level

Inquiry 2008 – results and analysis

Inquiry 2009 – results and analysis

* Inquiries per scientific discipline: Chemistry/Environmental Monitoring, Biology, Geo-physics, Fisheries,

II European context

Identification of future needs and science missions in general

* Reference is made to the ESF – MB position paper 10.

European partnerships.

* Reference to OFEG, EUROFLEETS

* 1st Contacts with IFREMER, NIOZ

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Conclusions

European science defines the science mission requirements:

Multidisciplinary cruises:

More accommodation for scientists/marinen technicians

More laboratory spaces & some specialised spaces

Much larger IT room, storage of specialised Iso containers

ROV handling including ROV workshop, command unit, etc.

Pelagic fishing and more space for handling and freezing capacity

Sediment coring

Dynamic Position(DP1-Green DP)

Silent ship (ICES 209)

Larger autonomy

(Maybe Iceclass 1)

Etc.

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Preliminary technical specifications

Multidisciplinary research vessel, fisheries, acoustics, oceanography, environmental monitoring, geophysics, biology, hydrography, etc ...

Buoy handling, mooring of landers, handling of ROV's, AUV's and other mobile equipment.

Working zone to be defined: complementary with the new built « RV Simon Steven » of VLIZ

Actual working zone of Belgica: 32° to 65° N – 15° E to 15° W

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Preliminary technical specifications

General Characteristics

- Overall length 65 m
- Beam 17 m
- Draft 4,6 m
- Max speed 16 kn
- Working speed 11 kn
- Endurance 30 days

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Preliminary technical specifications

Propulsion/energie

- Propulsion diesel electric (to be defined)
- Power 4000 KW 3 or for engines (thermic)
- 1 harbour generator 380 V 50 Hz, 450 KVA
- 2 azimuth propellers (to be defined) ~ 3400 KW total
- 1 omnidirectionnel propeller integrated in the hull (type « Gilljet » or other) power 1000 kW allowing for a speed of 6 kn without main propulsion.
- Conform with all existing and foreseen environmental regulations.

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Preliminary technical specifications

Crew and scientific complement

- 15 crew
- Maximum 24 scientists/technicians
- 5 single berth cabins + 17 doubles

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Preliminary technical specifications

Scientific facilities

Main mast

-Crow nest

Bridge deck :

- *dry lab – acoustic/seismic/communications operations room*
- *Utility room ((copy/printer room)*

Forecastle deck

- *Conference room* 24 m²
- *Drop keel Compartment* 14 m²
- *Dry laboratory + IT room* 80 m²

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Preliminary technical specifications

Main deck

- Dry lab 1 17,5 m²
- Dry lab 2 14 m²
- Dry lab 3 – chemistry 20 m²
- CTD /wet lab / CTD 80 m²
- External storage in deckhouses 2 m²
- . Radio active sources) 2 m²
- .Dangerous chemicals 2 m²
- .Toxic products 6 m²
- Divers changing room / store

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Preliminary technical specifications

Common Facilities

WheelMouse deck	
-Ship's office	160 m ²
Bridge deck	
-HVAC unit	40 m ²
Forecastle deck	
-Hospital	14 m ²
Main deck	
-Change room	25 m ²
-Duty mess	12,5 m ²
-Restroom	39 m ²
-Mess room	60 m ²
-Galley	32 m ²
Lower deck	
-Gymnasium	17 m ²

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Preliminary technical specifications

Containers

- 7 20' containers two of which under cover
- 3 flats 20' ISO or 6 10' ISO containers for *incubators*

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Preliminary technical specifications

Deck equipment

- **Aft deck area** 250 m²
- **Equipped with ISO container lashing points)**
- **Reinforced areas 35 mm steel for portable systems i.e. ROV, towed devices ...**
- **A frame on top of deck house 30 T SWL (dynamic) 4 m outboard/inboard reach ~ 11 m clearance from deck**
- **Stbd A frame 10 T SWL (dynamic) 3 m reach**

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Preliminary technical specifications

Deck equipment

- **Plankton beams each side**
- **Aft crane 130 t x m – 8 t à 16 m**
- **Midship crane 60 t x m – 4 t à 15 m**
- **Control room for gantries, cranes, winches**
- **Forward crane 15 t x m – 1,5 t à 10 m**
- **Workboat ~ 6 m (deployed by heave compensated davit)**
- **CTD slipping winch and davit (heave compensated) 6 T 5000 m dia 8.2 mm (10.2mm)**

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Preliminary technical specifications

Deck equipment

- **Hydrographic winch** 4 T 2000 m dia 6 mm
- **General purpose winches** 5 T 2500 m et 20 T 3000 m
- **Multipurpose « slow tow » sonde winch (2CV 3 optical)** 7,5 T 3000 m dia 16 mm
- **2 trawl split winches** 20 T 2000 m dia 24 mm
- **2 split net drum winches** 17 T 8 m³ chaque
- **2 Gilson winches** 12 T 200 m
- **Net sonde winch (slipring)** 4 T 3000 m dia 11 mm
- **4 synchronised stabilisation winches for heave control**
- **All external oceanographic winches will be fitted with a fresh water washing system**

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