# BENETTI MEDITERRANEO 116'

## Technical Specification

Release 02 November 2014

Valid from Hull: **001**

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# 00 GENERAL

# 00.10 GENERAL INFORMATION

## 00.10.01 GENERAL

Benetti Shipyard is pleased to introduce the general specifications for a Mediterraneo 116 feet length full displacement Motoryacht, with bulbous bow, twin screw propellers and twin diesel engines.

The Yacht is specifically designed, and is to be used solely, for recreational purposes.

The configuration of this Yacht is a triple deck arrangement plus sun deck.

The design and construction will be strictly in accordance with the following specifications, that describe the standard Yacht version.

The present Technical Specification, named Specification in the following, is referred to the standard general arrangement drawing, effective at date of contract signature.

Any Owner request of upgrading/modification to the Specification, to the general arrangement and to the drawings, will be evaluated and quoted accordingly if feasible.

Some options, that can be illustrated apart, are available for the Mediterraneo 116'.

## 00.10.02 PARTIES

| | |
|---|---|
| The Builder: | Azimut\|Benetti S.p.A, Div. Benetti |
| Exterior and Concept Designer: | Giorgio Maria Cassetta |
| Interior Designer: | Alessandro Pulina |
| Naval Architect: | Pierluigi Ausonio Naval Architecture.<br>Azimut\|Benetti S.p.A, R&D Department. |
| Engineering: | Azimut\|Benetti S.p.A, R&D Department<br>Div. Benetti Technical Department |

# 00.20 DESIGN AND PERFORMANCES

## 00.20.01 MAIN CHARACTERISTICS

| | | | | |
|---|---|---|---|---|
| Length overall: | 115' 10" | 35.3 | m | approx |
| Waterline length at full load: | 92' 10" | 28.3 | m | approx |
| Beam: | 24' 7" | 7.5 | m | approx |
| Beam overall: | 25' 3" | 7.7 | m | approx |

| | | | | |
|---|---|---|---|---|
| Draft at half load (even keel): | 6' 9" | 2.05 | m | approx |
| Draft at full load (even keel): | 7' 1" | 2.15 | m | approx |
| Displacement light ship: | | 159 | t | approx |
| Displacement half load: | | 185 | t | approx |
| Displacement full load: | | 200 | t | approx |
| Gross tonnage (ITC '69): | | ≤ 299 | GT | |

| | | | | | |
|---|---|---|---|---|---|
| Total Fuel Oil tanks: | 8˙718 | USG | 33˙000 | litres | approx |
| Fresh Water tank: | 1˙057 | USG | 4˙000 | litres | approx |
| Sewage and Grey waters tank: | 925 | USG | 3˙500 | litres | approx |
| Clean oil tank: | 158 | USG | 600 | litres | approx |
| Dirty oil tank: | 158 | USG | 600 | litres | approx |

| | | |
|---|---|---|
| Accommodations for Owner & guests: | 10 | persons in 5 cabins |
| Accommodations for crew: | 7 | persons in 4 cabins |

## 00.20.02 HULL DESIGN, STABILITY

Hull is designed on the basis of experience on previous similar Benetti Yachts, to have the appropriate seakeeping, manoeuvrability and general handling characteristics.

Tank tests have been performed for the Series at the "Krylov Shipbuilding Research Institute" of St. Petersburg.

The Yacht is to float according to his design waterline in the full load condition, with a tolerance of ± 0,30 m on the design LBP for the trim.

A Stability information booklet containing the stability characteristics of the Yacht under standard load conditions (full load/departure, half load, and 10% load/arrival) will be prepared according to the IMO Code on Intact Stability, Res. 749(18), criteria from 3.1.2.1 to 3.1.2.4.

The standard loading conditions are defined in the following way.

- Full load/ departure condition:
  - fuel oil, clean oil and fresh water tanks at 98% of maximum capacity, with max free surface correction,
  - sewage and grey water, dirty oil tanks at 10% of maximum capacity, with relevant free surface correction,
  - full number of passengers and provisions at 100%,

- Half load condition:
  - fuel oil, clean oil and fresh water tanks at 50% of maximum capacity, with relevant free surface correction,
  - sewage and grey water, dirty oil tanks at 50% of maximum capacity, with relevant free surface correction,
  - full number of passengers and provisions at 50%.

- 10% load/ arrival condition:
  - fuel oil, clean oil and fresh water tanks at 10% of maximum capacity, with relevant free surface correction,
  - sewage and grey water tank, dirty oil tanks at 90% of maximum capacity, with relevant free surface correction,
  - full number of passengers and provisions at 10%,

A Stability test will be carried out by Benetti to establish the Yacht lightship weight and center of gravity position to be used in the Stability information booklet.

Water inside the bathtube on sun deck, passengers and crew with their personal effects, are included in all loading conditions.

Owner's supply up to 4 metric tonnes will be allowed, including the ones mentioned in Ch. 10 and will be considered in the lightship calculation.

An extra weight of 5 tonnes (not included in performance calculation) will be taken into account in stability calculation as yacht growth margin.

## 00.20.03 PERFORMANCES

| | |
|---|---|
| Max speed: | 15,0 knots. |
| Speed at 85% of max power: | 14,0 knots. |
| Range at 10 knots calculated using two engines and one generator of 70 kW working at 75% of max power, 95% of fuel oil capacity: | 3˙000 nautical miles. |

The above performances will be tested during Sea trial under the following conditions:

- wind not exceeding Beaufort scale 1, with wave height < 0.2 m,
- in water with a depth of more than 60 m,
- yacht evenly trimmed fore and aft, and athwartships,
- clean hull,
- stabilizer fins operating,
- pool empty,
- half load; the displacement at Sea trial will correspond to the half load condition as defined at 00.20.02, extra and options excluded; liquids inside the tanks may be adjusted to obtain that displacement and the even keel.

It should be noted that all power, speed and range figures specified are based on standard displacement and the ambient conditions as stated by the main engines manufacturer.

For all optional and additional equipments, and for different ambient conditions, corrections will be applied according to towing tank testing records and main engines manufacturer specification.

## 00.20.04 NOISE & VIBRATION

Benetti has performed a complete noise and vibration study finalized to control the relevant levels in the various loading conditions.

The type and characteristics of the sound insulation will be determined on the basis of accurate calculations made to reduce the noise levels (both airborne and structural borne) to the stated values.

Noise requirements

The noise levels shall not exceed the following value in dB(A) in the specified areas and conditions, with one generator running and air conditioning on (primary air and fan coils at minimum speed).

| Area | Deck level | Anchor<br>E.R. fans at min. speed | Navigation<br>Two engines @ 1500 RPM<br>E.R. fans at half speed |
|---|---|---|---|
| Aft guests cabins: | LD | 47 | 58 |
| Fwd guests cabins: | LD | 46 | 56 |
| Crew mess: | LD | 48 | 56 |
| Crew cabins: | LD | 48 | 56 |
| Main saloon: | MD | 45 | 62 |
| Dining area: | MD | 45 | 58 |
| Galley: | MD | 52 | 59 |
| Owner's bedroom: | MD | 44 | 51 |
| Sky lounge: | UD | 46 | 55 |
| Captain cabin: | UD | 48 | 56 |
| Wheelhouse: | UD | 56 | 56 |
| Aft main deck (ext. area): | MD | 58 | 80 |
| Aft upper deck (ext. area): | UD | 57 | 73 |
| Middle sun deck (ext. area): | SD | 56 | 70 |

A + 2 dB(A) measurement tolerance will be accepted on the all measured noise levels.

Noise levels are to be measured in the centre of the compartment or external area, between 1.2 m and 1.6 m above the floor or deck, at a distance of at least 1 m from reflecting surfaces.

Noise levels measurements are to be carried out by means of a precision grade sound level meter. This sound level meter must comply with IEC60651 and IEC 60804 Type 1 standards (or recognized equivalent standard).

Noise levels have to be recorded in dB using the weighting filter - dB (A).

The sound level meter is to be set for slow response and calibrated with an acoustic calibrator before and after the measurement campaign.

The measurements shall be carried out in accordance with the following conditions:

- all doors installed and closed;
- all interior spaces to be fully decorated and finished with carpet, draperies, loose furniture in place (where applicable), etc.;
- all Owner and guest accommodation and public spaces as well crew cabins, are assumed to have carpet floor covering; all other spaces are assumed to have wooden (or equal) floor covering;
- galley extraction fan operating at lowest speed;
- galley hood extraction fan will be off;
- bow thruster not operating;
- stabilizers operating at anchor and during navigation;
- noises transmitted, by radios, HiFi equipment and kitchen appliances, shall be avoided;
- electronic noise in the wheelhouse to be such to do not dominate the target noise levels stated for the space.

Notes:

- The data indicated in this paragraph are referred to the main engines/reduction gears configuration MAN V12-1400/ ZF 3310 and to the standard general arrangement effective at date of contract signature. For different configuration they have to be verified.
- In the event that a rope cutting device is installed as option upstream the propellers, the above target noise levels in navigation will be increased by 3 dB(A) in the all lower deck spaces, and by 2 dB(A) in the upper deck and sun deck area.

Vibration requirements

The maximum value of the vertical velocity vibration levels, over the frequency spectrum from 5 Hz to 100 Hz, shall not exceed following values, when measured in RMS [mm/s] in the specified areas and conditions.

| Area | Navigation<br>Two engines @ 1500 RPM<br>E.R. fans @ half speed |
|---|---|
| Owner and guests interior luxury areas | 1.5 |
| Open deck entertainment areas | 2.0 |
| Crew quarters | 2.0 |

A + 0.5 mm/s RMS measurement tolerance will be accepted on the all measured vibration levels.

The vibration levels must be analyzed in FFT from 5 to 100 Hz with spectral line in constant band of 0.25 Hz and Hanning window type

Vibration levels have to be measured in the centre of the specified area.

General test conditions

The above noise and vibration requirements are based on the following conditions to be respected during noise and vibration measurements:

- wind not exceeding Beaufort scale 1, with wave height < 0.2 m,
- in water with a depth of more than 50 m,
- yacht evenly trimmed fore and aft, and athwartships,
- clean hull,
- stabilizer fins operating,
- pool empty,
- half load; the displacement at Sea trial will correspond to the half load condition, extra and options excluded; liquids inside the tanks may be adjusted to obtain that displacement and the even keel.

## 00.20.05 STANDARD AND WORKMANSHIP

Outfitting and engineering details will be chosen from Benetti library/standard/selection.

All the materials used and works carried out shall conform with the Benetti shipbuilding standards for this class of yachts.

All materials and equipment used in the construction of the Yacht will be new and suitable for the use to which they will be put.

Benetti will choose materials and equipment from a list of suitable Manufactures. The list will be delivered to the Owner's Representative before the signature of the Contract.

The selection of the Manufacturers indicated in the list for each item is at Benetti discretion. The Manufacturers, materials and equipments may be changed with equivalents one at Benetti discretion.

All materials, accessories and equipment not specifically named will be chosen from the Benetti library/standard/selection.

Benetti reserves the right to change their own library/standard/selection at his sole discretion.

The layout and installation of all machinery, accessories and equipment will allow easy access for routine maintenance and servicing.

The workmanship and materials may be inspected by the Owner's Representatives, both at Benetti facilities and at the subcontractor facilities, after having communicated the survey date.

### 00.20.06 CLASSIFICATION

The Yacht described in the Specification, including its machinery, equipment and systems will be constructed in accordance with the following rules and regulations.

- RINA rules for classification of pleasure yachts C ✠ HULL • MACH Y.
- As option, the Code for large yachts (24 m and over in load line length) in commercial use for sport or pleasure, which do not carry cargo and do not carry more than 12 passengers, by the British Maritime and Coastguard Agency (LY3), as a "Short Range" Yacht.
- Flag Authority requirements, additional to class notation and to the Specification, will be evaluated case by case and quoted accordingly if feasible.

## 00.30 PROJECT MANAGEMENT

### 00.30.01 REPRESENTATIVES

A Project Manager will be appointed by Benetti as the interface with the Owner's Representative.

Benetti will advise the Project Manager name one week following signature of the Contract.

The Owner will appoint only one Representative acting on his behalf. His name will be given to Benetti within one week following signature of the Contract.

Owner's Consultants involved, have to refer to the Owner's Representative.

Selection of materials or items of equipment to be done by the Owner and/or his Representative must be carried out in accordance with the schedule presented by Benetti to the Owner's Representative at the sign of the Contract.

The communication language will be English.

## 00.30.02 CHANGE ORDERS

Any modification of the design, construction, furnishing, equipment, etc. which implies a change in price, weight, stability, speed, range, noise and vibration levels, delivery time and/or whatever other feature as described in the Specification and/or shown on the drawings shall only be carried out after such modifications and any related change have been agreed in writing between the Owner and Benetti on a change order form.

It should be considered that any increase of weight will be reflected in a speed and range reduction.

When changes are requested by the Owner's Representative to Benetti, Benetti shall take into consideration the Owner's Representative requests, provided the requested change is not contrary to the Specification and the request is made prior to Benetti issuing the construction drawing to the production department, placing his order or carrying out the work relevant to the request.

Benetti will be entitled to refuse any requests in the last six months before the contractual delivery.

## 00.30.03 DISCREPANCIES

If there is any conflict between the Specification on the one hand and any plan or drawing relating to the Yacht on the other, then the Specification will prevail.

If, as a result of increased experience or general technical developments, other designs, materials or methods of manufacture than those stated in this Specification are found to be more efficient or better suited to the intended purpose, they may be adopted at Benetti's discretion.

## 00.30.04 ACCEPTANCE AND DELIVERY

After sea trials and quay tests the Yacht will be delivered to the Owner afloat at Benetti's Viareggio Shipyard in a clean condition with all systems in proper working order. An official delivery and acceptance protocol as specified in the Contract will be signed.

## 00.30.05 SEA TRIALS AND QUAY TESTS

Before delivery, Benetti will carry out below listed trials and tests to verify all the systems and equipments.

The tests will be carried out according to the test memoranda list and schedule, that will be delivered to the Owner's Representative one month before beginning.

All official tests will be executed in presence of Owner's Representative and/or Classification Society Surveyor and/or Flag Authority Surveyor where necessary.

The Owner's Representative will be invited to attend these tests and accept the relevant system when found in compliance with the Specification.

1) Quay Tests:

1.1) tanks inspection before filling.

1.2) stability test (if required by Class/Flag Authority).

1.3) mooring capstans.

1.4) doors, windows and portholes hose test,

1.5) tender and PWC launching and haulage system,

1.6) stern gangway,

1.7) fuel oil system,

1.8) fire extinguishing system in engine room,

1.9) sea water cooling system,

1.10) cold and hot fresh water system,

1.11) black and grey water system,

1.12) scuppers and drainage system,

1.13) engine room ventilation,

1.14) air conditioning system,

1.15) alarms and monitoring system,

1.16) navigation and communication equipment set-up.

1.17) TV, Hi-Fi, AM/FM, entertainment and domestic appliances,

1.18) fire detection system,

1.19) diesel generators load and paralleling,

1.20) lighting system,

1.21) batteries and battery chargers,

1.22) shore power,

1.23) navigation lights,

1.24) crew interior,

1.25) guest interior,

1.26) domestic appliances.

2) Sea Trials:

2.1) Yacht speed (measured by the onboard GPS system),

2.2) consumption at different speeds,

2.3) main engine exhaust back-pressure,

2.4) endurance,

2.5) engine controls, alarm and monitoring system,

2.6) manoeuvring and steering gear,

2.7) windlasses,

2.8) watermaker,

2.9) magnetic compass adjustment,

2.10) bow-thruster,

2.11) stabilizer fins,

2.12) navigation and communication equipment,

2.13) noise levels measurements underway and at anchor,

2.14) vibration level measurements underway.

All costs in connection with the standard quay tests and sea trials will be at Benetti's account. After delivery of the Yacht, the remaining fuel oil in tanks will be invoiced to the Owner at the current price at time of delivery.

# 00.40 DOCUMENTS

## 00.40.01 CERTIFICATES

At the time of the Yacht delivery, Benetti shall supply the following documents and certificates:

- Builder's Certificate, issued by Benetti;
- International Tonnage Certificate (1969 Tonnage Convention), issued by RINA on behalf of the Flag Authority;
- Interim Classification Society Certificate, issued by RINA;

In case of application of the LY3 Code (option), the following certificates will be supplied:

- a Letter or Certificate of Compliance, issued by Flag Authority;
- International Sewage Pollution Prevention Certificate (Marpol Convention Annex IV), issued by RINA on behalf of the Flag Authority;
- Shipyard Hull antifouling Declaration.

When RINA is not authorized by the Flag Authority, the above certificates will be issued by others delegated Bodies.

## 00.40.02 DRAWINGS

Benetti will prepare drawings and carry out calculations necessary for the construction of the Yacht in accordance with the Classification Society requirements.



The drawings shall not be reproduced also partially nor in any way used for the manufacture of the component or unit illustrated and must not be released to other parties without written consent. Any infringement will be legally pursued.

One printed format set of the following engineering and arrangement drawings for operational purpose will be supplied to the Owner's Representatives at the delivery of the Yacht.

1) General arrangement,
2) Stability information booklet,
3) Tanks capacity plan,
4) Manholes/tanks penetration plan,
5) Bilge and fire fighting system,
6) Sea water cooling system,
7) Air venting system, overflows, sounding pipes,
8) Scuppers system,
9) Fuel oil system,
10) Hot and cold fresh water system,
11) Stabilizers system (included into the Manufacturer manual),
12) Bow-thruster arrangement (included into the Manufacturer manual),
13) Steering gear system (included into the Manufacturer manual),
14) Sewage and grey water system,
15) Mooring arrangement,
16) Engine room arrangement,
17) Main engines exhaust system,
18) Generators exhaust system,
19) Shaft line arrangement,
20) Electrical wiring diagrams and cable list,
21) Electric switchboard and distribution panels arrangement,

22) Antennas plan,

23) Fire and safety plan,

24) Docking/hauling plan,

25) Engine room ventilation plan,

26) Air conditioning system (included into the Manufacturer manual).

## 00.40.03 DOCUMENTATION AT DELIVERY

The following documents in the printed format will be supplied to the Owner's Representative at the delivery of the Yacht:

- One set of Manufacturer manuals for engine room main machinery, stabilizer fins, bow thruster, deck equipment, air conditioning system, galley and laundry equipment, entertainment equipment, nav/comm/signalling systems. All manuals will be in English language.
- Reports of shop tests of main engines and generators, if available.
- Drawings as per above paragraph 00.40.02.
- Magnetic compass adjustment report.
- Certificates as per paragraph 00.40.01.
- Sea trials report.

# 01 STRUCTURE

# 01.10 HULL STRUCTURE

## 01.11.00 HULL MATERIALS

Hull and deck will be built in glass-fiber reinforced plastic (GRP).

The Yacht will be constructed of a combination of foam (closed-cell) core sandwich and single skin fiberglass construction utilising mat, unidirectional and biaxial E-glass.

For the lamination of structural parts, hull, deck and reinforcements, a polyester isophtalic resin will be used.

The prevention of osmosis phenomenon of the hull will be carried out by using a iso-neopentylic gelcoat, in order to create a suitable barrier to water.

A further barrier to hydrolysis of the GRP laminate will be obtained by using a vynilester resin for the execution of the skin coat (first lamination layers after the gelcoat).

Antifouling paint will be applied to the underwater hull as per Manufacturer recommendations.

The mechanical and chemical properties of the laminates will be verified by material tests in accordance with the Classification Society requirements.

## 01.11.01 HULL STERN STRUCTURE

The Yacht will have a stern GRP platform, as per general arrangement, integrated to aft garage door.

## 01.11.02 HULL CONSTRUCTION

The structural design and assessment will be according to the most recent experience in design and construction of GRP for this type of Yacht.

The hull structure, manufactured by hand lay-up, shall be framed with longitudinal stiffeners and transversal web frames and bulkheads.

The hull will be built in single skin-type GRP with longitudinal stiffeners and transversal frames, and main deck will be built in sandwich-type GRP consisting of PVC foam core or adequate wood core (in correspondence with local loads) and inner and outer skins.

The hull will have tanks for fuel oil, clean oil, dirty oil, sewage and grey waters, fresh water integrated into the hull structure.

Each structural tank will have at least one manhole.

The tank top will be joined to the vertical structural elements and to the hull with Classification Society approved GRP lamination.

Tank internal surfaces will be treated in order to avoid that the liquid stowed in the tank will penetrate the GRP material.

All penetrations of piping and electric cables through watertight bulkheads will be watertight.

Structural bulkheads will be carried out through the sandwich-type GRP consisting of a PVC foam core or adequate wood core and inner and outer skins.

Three watertight bulkheads and garage will divide the Yacht in five watertight compartments.

The watertight collision bulkhead will be positioned and joined to the hull in accordance with the Classification Society requirements.

## 01.11.03 HULL BOW STRUCTURE

The bulbous bow will be in GRP and integrated in the hull.

Two chain lockers of such a volume suitable to contain port and starboard chains will be provided forward the watertight collision bulkhead, as part of the forepeak.

A GRP bow thruster tunnel will be provided and will be fixed to the hull by means of an adequate number of GRP layers.

## 01.11.05 MAIN SEA CHESTS

GRP sea chests integrated in the hull bottom will be provided for main engines sea water supply.

## 01.11.08 STRUCTURAL REINFORCEMENTS

Special consideration will be paid to local reinforcements such as:

- fore and aft sections,
- main machinery foundations,
- shaft brackets,
- rudders,
- fin stabilisers,
- bow-thruster tunnel,
- rudder hole,
- sea chests,

- hull transducers,
- windlasses,
- bollards,
- anchor hawse,
- tender and PWC launching and haulage system.

### 01.11.10 KEEL

A structural keel will be integrated in the hull bottom.

### 01.11.11 BULWARK

GRP bulwark will be provided, as indicated on the general arrangement and will be integrated into the hull sides.

The bulwark will be equipped with freeing ports, in compliance with the applicable rules.

Top of bulwark will be finished in polished gelcoat.

### 01.11.12 HULL DOORS

The Yacht will be equipped with a transom door.

The transom door will open turning down and creating a large bathing platform.

Hull door will be watertight according to Classification Society requirements.

### 01.11.99 HULL MANUFACTURE

Hull and superstructure will be built out following a building process description approved by the Classification Society.

The hull and the superstructure will be laminated into female moulds.

The mould surfaces will be fair and smooth.

The moulding will be free from uneven edges and its exterior surface will be properly faired.

### 01.13.01 ANODES AND SENSORS HOUSING

Suitable housings will be fitted into the hull bottom for depth-sounder and log transducers.

## 01.13.02 PROTECTION FROM ANCHORS AND CHAINS

Stainless steel profiles will be fitted on the bulbous bow to prevent the paint work damaging from the anchor chain.

## 01.13.04 REMOVABLE PLATES

The following removable plates will be provided to assure the embarkation at an appropriate time during construction and the possible later removal of main engines, generators and other engine room machinery:

- n° 2 on main deck,
- n° 1 on upper deck,
- n° 1 on sun deck.

These plates will be bolted assuring the integrity of the decks structure.

## 01.13.05 WINDOWS AND PORTHOLES FRAMES

FRP porthole flanged collar will be provided integrated into the hull side.

FRP window support will be provided for glued fitting windows.

## 01.13.08 PROPELLER SHAFT BRACKETS

Shaft brackets will be provided of single profiled arm and made of G-OTS59. They will be fixed by bolts to the hull bottom, with a plate recessed in a dedicated housing and a counterplate.

## 01.13.09 DOUBLE PLATES AND INSERTS

Aluminium and steel inserts will be fitted to distribute concentrated stress due to the fastening of heavy machinery and parts to the hull structure.

## 01.13.10 MAIN ENGINES OVERBOARD DISCHARGE

Main engines will have main outlets located below the water level equipped with a scoop, and will have the by pass outlets (working at lower rpm regime) located above the water level.

Outlets will be designed to create a depression to maintain exhaust back pressure below the limit allowed by the engines Manufacturer.

### 01.13.11 GENERATORS OVERBOARD DISCHARGE

Diesel generators gas exhaust outlet will be provided passing into the GRP structure over waterline level.

### 01.13.12 RUBBING STRAKE

Rubbing strakes, integrally built in GRP, will be provided at main deck and waterline level as indicated in the general arrangement.

The rubbing strake at main deck level will be integrated with the hull moulding, while the one at the waterline level will be manufactured separately and it will be jointed by bolts to the hull in a second phase

### 01.13.14 HAWSE PIPES AND ANCHORS POCKETS

Hawse pipes will be made of AISI 316L stainless steel with half-round ends in anchor pockets and at deck level.

Anchor washing facilities with nozzles per hawse pipe will be provided.

### 01.13.17 STRUCTURAL METAL REINFORCEMENTS (BEAMS AND PILLARS)

Steel pillars will be fitted in the hull, connected to the structure, to properly support the decks.

### 01.14.01 HULL BASEMENTS AND SUPPORTS

Proper plywood (fully laminated with GRP) or metal base frame will be provided to support each machinery, equipment and switchboard in engine room.

Base plates will be painted.

## 01.20 SUPERSTRUCTURE STRUCTURE

### 01.21.00 SUPERSTRUCTURE MATERIALS

The superstructure will be built with a cored sandwich structure in the decks and on the sides utilising carbon fiber and epoxy resin.

Where necessary single skin laminate will be provided.

### 01.21.01 SUPERSTRUCTURE CONSTRUCTION

Superstructure decks and sides will be built in sandwich-type consisting of PVC foam core and carbon fiber skins laminated with epoxy resin

Opening in superstructure for pipes, ducts and cable ways will be properly reinforced.

On the upper deck the top of bulwark will be finished in polished gelcoat.

### 01.21.07 SUPERSTRUCTURE REINFORCEMENTS

Local reinforcements will be fitted, when necessary, to support concentraded loads due to heavy parts and objects.

### 01.23.02 MAIN MAST

A carbon fiber laminated rollbar and arch will be provided.

An aluminium alloy mast will be provided above the arch. The mast design will include platforms and others adequate supports to meet the antennas plan for the navigation and communications equipment listed at Ch. 06.

### 01.23.05 SUPERSTRUCTURE PILLARS

Steel pillars will be fitted, where necessary, inside the superstructure between the main deck and first order and between the first and second order.

## 01.40 ASSEMBLING

### 01.41.00 SUPERSTRUCTURE TO HULL CONNECTION

The connection between the superstructures and the main deck will be obtained by means of structural adhesive bonding.

# 02 OUTFITTING

# 02.10 EXTERNAL DECKS OUTFITTING

## 02.11.00 DECK LINING

External decks will be planked with teak as per general arrangement and according to Benetti standard 21100, reference to item 2200, thickness will be 12 mm.

Bathing platform and transom door will be planked as per Benetti standard 21106, reference to item 1000, thickness will be 10 mm.

External stairs will be planked as per Benetti standard 21107, reference to item 2100, thickness will be 12 mm.

Deck planking will be selected for uniform colour and straight grain.

## 02.14.00 EXTERNAL CEILINGS

External ceilings will be made in composite material, painted to match the superstructure color, with satin finish.

Ceilings will integrate recesses for lights and speakers, and will have removable sections to access hidden equipment where necessary.

## 02.15.00 EXTERNAL FURNITURE OUTFITTING

External lockers will have a scupper on the drip tray around the horizontal hatches. In the technical lockers there will be a plastic grating on the floor.

Lockers used for storage of deck equipment will be Formica lining with removable shelves.

Lockers will have stainless steel fittings. Design and details will be according to Benetti Standard and/or Benetti Selection.

## 02.15.01 EXTERNAL LOOSE FURNITURE

Loose chairs, armchairs, tables, stools, sofas, etc. will be supplied and installed by Benetti according to the Loose furniture plans.

External loose forniture will be provided, according to Benetti Benetti Standard and/or Benetti Selection..

# 02.20 FAIRING, PAINTING AND INSULATION

## 02.21.00 UNACCESSIBLE SPACES TREATMENT

The unaccessible spaces will be finished with a water paint treatment.

## 02.22.00 TECHNICAL SPACES FLOORING

The external lockers, storages and internal surfaces of GRP furniture, will be finished in white gelcoat.

## 02.25.00 PAINT, GENERAL

Hull and superstructure external surfaces will be painted, colour Snow White.

The external surfaces appearance will be as per Benetti standard BEN-MI-081.

## 02.25.01 HULL TOP SIDE PAINTING

The topsides will be painted, colour Snow White.

One boot stripe will be painted above the water line, colour black.

## 02.25.02 UNDERWATER HULL PAINT

The hull bottom will be treated with anti-osmosis cycle and antifouling paint, colour black.

## 02.25.03 SUPERSTRUCTURE PAINT

The superstructure will be painted, colour Snow White.

## 02.25.04 INTERNAL PAINT

Bilges

The bilges will be finished in white colour gelcoat, self levelling gelcoat or enamel painting.

The selflevelling gelcoat and the enamel will be applied on all the visible surfaces.

Fittings

Nuts and bolts, gaskets, inox parts, copper stripes and piping insulation will not be painted.

Bulkheads and sides

All the internal surfaces will be finished in white colour water paint, gelcoat, selflevelling gelcoat or enamel painting.

The visible surfaces will be finished with selflevelling gelcoat or enamel painting.

## 02.25.07 TANK TREATMENT

Tanks top

Tanks top will be finished in white colour selflevelling gelcoat or enamel painting.

## 02.25.08 PIPING PAINT

Piping

In Engine room all pipes (with exclusion of inox AISI 316 polished pipes) will be white RAL 9003 enamel painted .

Out of engine room, carbon steel, inox and CuNi pipes of the welded type will be white RAL 9003 enamel painted.

Inox and cupronichel of the pressfitting type, out of engine room will not be painted.

PVC , polypropilene multilayer pipes will not be painted.

## 02.25.09 MACHINERY AND OUTFITTING EQUIPMENT PAINT

Machinery, main machinery metal base plates, switchboards

Main machinery metal base plates (main engines, diesel generators), bilge and fire pumps will be white RAL 9003 enamel painted.

Main engines, generators, switchboards and auxiliary machinery will be white painted RAL 9003.

## 02.27.02 GAS EXHAUST PIPES INSULATION

Gas exhaust ducts of the main engines will be insulated with a rigid material. A maximum temperature of 65 °C will be reached in the exposed surfaces. Connections will have textile insulation.

## 02.27.03 PIPES INSULATION

Hot water pipes will be insulated.

Chilled water pipes will be insulated inside and outside engine room. Maximum care will be taken to ensure the insulation continuity in order to avoid any condensation.

### 02.27.04 AIR CONDITIONING DUCTS INSULATION

Air conditioning supply ducts, when in rectangular section, will be insulated with proper material in order to reduce heat/cold loss and avoid condensation when is necessary.

Round section supply ducts will be of the pre insulated type when is necessary.

### 02.27.05 RESILIENT MOUNTING OF BULKHEADS, CEILINGS AND PARTITIONS

Partition panels of ceilings and bulkheads in general will be installed by using elastic system to avoid vibrations transmission from the structure to the interior.

Floating floors – wood sandwich panels will be fitted on a structural frame fixed onto the deck. Between panels and frame structure will be fitted elastic material, according to the location. Hatches, traps and removable sections will be made where required, hatches will be fitted with proper lifting devices.

### 02.27.09 FIRE AND COMFORT INSULATION

Yacht insulation will be carried out taking into account fire and comfort requirements and will be installed on board according to insulation plans and details developed by Benetti.

### 02.27.10 ENGINE ROOM

As an option the insulation of the engine room will be carried out to guarantee the B-15 equivalent class structural fire protection according to LY3 requirements and carefully applied.

Ceiling, sides and bulkheads in engine room will be treated with sound proofing materials.

## 02.30 NAUTICAL AND DECK EQUIPMENT

### 02.31.01 RUDDER BLADES AND STOCKS

Two spade rudders will be provided, made of AISI 316, sized to ensure good evolution capabilities at low speed. They will have filling and drain plugs and will be pressure tested.

Rudder stocks will be made in Aquamet 17, or equivalent, sized according to Classification Society requirements.

A rudder skeg will be provided above the blade with a minimum clearance.

## 02.31.02 RUDDER HOLES

Rudder tubes of suitable diameter will be fixed by bolts to the hull bottom with flange recessed in a dedicated housing.

## 02.31.03 RUDDERS BUSHES

Rudder bushes of bronze material will be provided for the rudder stocks.

## 02.31.04 RUDDER MACHINERY, PUMPS AND ACCESSORIES

The steering gear will consist of the following components:

- n° 1 electrical actuator in the wheelhouse,
- n° 1 double electro hydraulic power pack in the aft port technical room,
- n° 2 cylinders (one for each rudder),
- n° 2 tiller arm joined by interconnecting rod,
- interface with autopilot.

The electrical actuator exciting a solenoid valve will allow the oil to flow from the electro hydraulic pumps through the distribution valve to the two hydraulic cylinders.

In case of failure of one cylinder the system continues to operate with half power.

An hydraulic hand pump with steering wheel will be provided in the aft port technical room for emergency manoeuvring.

Rudder angle indicators will be installed at all steering positions.

Rudders will be controlled by a steering wheel and by a tiller located in the wheelhouse, by tillers on the wing stations and by the emergency hand pump.

## 02.32.01 WINDLASSES

Two electric windlasses of the vertical type will be installed, as shown on the general arrangement. The windlasses will be raised from the deck level and locally controlled.

Voltage will be 400 Vac, 3 phases and power 5,5 kW with electromagnetic brake.

## 02.32.02 CAPSTANS

Two electric foot operated vertical capstans will be fitted on aft deck as shown on the general arrangement. The capstans will be raised from deck level on dedicated manoeuvring area each side and locally controlled.

Voltage will be 400 Vac, 3 phases and power 4 kW.

## 02.32.03 MOORING BOLLARDS

The following polished AISI 316L stainless steel bollards will be provided:

- four on the aft main deck,
- four on the forward main deck,
- two on the main deck at mid sides, of the horn type, integrated in the fairleads.

Size according to Benetti standard.

## 02.32.06 FAIRLEADS

Two polished AISI 316L stainless steel fairleads will be provided on main deck at mid sides, with round bar and integrated bollards.

Size according to Benetti standard.

## 02.32.07 ROLLER FAIRLEADS

The following polished AISI 316L stainless roller fairleads will be provided:

- four on the forward main deck,
- four on the aft main deck.

Size according to Benetti standard.

## 02.32.08 ANCHORS

The Yacht will be equipped with n° 2 galvanised steel HHP (high holding power) anchors of 200 kg each according to rules.

## 02.32.09 MOORING LINES

The following lines will be supplied:

- n° 3 mooring lines, each of 77 m length, black colour, polyester, eye-splice leather coated at one end, as for rules.

## 02.32.10 CHAIN ROLLERS

A stainless steel chain roller sheave will be fitted in order to prevent excessive friction at the upper end of the hawse pipes.

Size and type will be chosen from Benetti standard.

### 02.32.11 CHAIN STOPPERS

A stainless steel stopper will be installed to hold in position the anchor against the anchor pocket. Size and type will be chosen from Benetti standard.

### 02.32.13 CHAIN QUICK RELEASE

Anchor chains will be connected to the hull by a quick release device, to allow safe release when in emergency conditions.

### 02.32.14 ANCHOR CHAINS

The Yacht will be equipped with n° 2 chains made of galvanised steel of 14 mm diameter without stud link of a length of 110 m each.

### 02.33.01 FLAG POLE

A stainless steel flag pole on stern, integrated with handrail, will be provided.

### 02.33.02 FOREMAST

A GRP forward mast will be provided on the external top of the wheelhouse as shown on the profile. It will have the necessaries bases for the masthead light, searchlight and whistle.

### 02.33.03 JACK STAFF

A stainless steel jack staff on bow will be fitted.

### 02.34.01 BOAT HOOKS

Two varnished wood boat hooks 4 m length will be provided.

### 02.34.02 ROPE LADDER

One rope ladder will be provided for pilot boarding.

### 02.34.05 YACHT BELL

One chromed brass yacht's bell, 300 mm diam. will be supplied. The bell will be engraved with Yacht's name and year of delivery and fitted on the fore deck.

### 02.34.06 SIGNAL SHAPES

Three balls and one diamond, black colour and of the folding type will be provided.

### 02.34.08 NAUTICAL INSTRUMENTS

A round clock, barometer and a thermometer will be installed in the wheelhouse.

### 02.35.00 PROTECTIVE FABRIC COVERS

Protective covers for anchor windlasses, bell, horn and search light will be provided in white "textile".

Covers for upper and sun deck exterior sofas, main upper and sun deck grp sofas cushions, sun deck bathing cushions and external tables will be provided in white "textile ".

Sun screen black colour for wheelhouse windows will be provided.

## 02.40 WINDOWS, DOORS AND HATCHES

### 02.41.02 WINDOWS

Size and positions of the windows are shown in the general arrangement and profile. The glass sizing will be according to Classification Society requirements.

No windows can be opened: all windows will be glued to the structural frame formed as part of the hull or superstructure.

Each glass will be provided with a black band around its contour in order to prevent the UV degradation of the bonding.

Windows colour will be grey europe, wheelhouse front and laterals windows will be clear.

### 02.41.03 WINDOWS WIPERS

Electric windows wipers will be fitted for front wheelhouse windows.

Freshwater jet-spray for each wiper will be fitted.

### 02.43.01 WATERTIGHT DOORS

Hinged watertight doors will be provided for the engine room and the garage. They will be manually operated. The open and closed position will be monitored in the wheelhouse.

## 02.43.04 EXTERNAL DOORS

One curved sliding door with stainless steel AISI 316L frame and tempered glass will be provided on the aft main deck saloon. The glass colour will be grey Europe. The door will have four leafs, two fixed at sides and two sliding in center. They will be electrically operated by radars and pushbuttons.

One sliding door with stainless steel AISI 316L frame and tempered glass will be provided on the aft upper deck saloon. The glass colour will be grey Europe. The door will have four leafs, two fixed at sides and two sliding in center. The sliding ones on the center will be manually operated.

One sliding door with stainless steel AISI 316L frame and tempered glass will be provided on the main deck at port side for access to the pantry. The glass colour will be grey Europe. The door will be manually operated.

One sliding door with stainless steel AISI 316L frame and tempered glass will be provided on the main deck at starboard for side acces to the lobby. The glass colour will be grey Europe. The door will be manually operated.

Two hinged doors with tempered glass will be provided for acces to the wheelhouse. The glass colour will be clear. The doors will be manually operated.

All the doors will be weathertight according to the Classification Society requirements and secured in open position.

Size and position according to the general arrangement.

## 02.44.01 EXTERNAL HATCHES

Weathertight hatches for garage escape, for access to forward locker will be provided.

A bulwark door for access will be provided at main deck on each mid side. The doors will open outboard 180°.

Size and position as for general arrangement. Details according to Benetti Standard.

## 02.44.02 INTERNAL HATCHES

Hinged hatches will be used as secondary escape from compartments. They will be fitted at deck and they will be watertight or weathertight according to the position.

Panels for access to the stabilizer fins compartments will be provided.

## 02.45.01 MANHOLES

At least one GRP manhole for each tank will be provided. Handles will be fitted to the manholes. Manholes to be selected from Benetti library.

### 02.46.02 HULL DOOR

A hull door will be provided for the garage on the stern. It will open downward to become a bathing platform, lined with teak. The door will be hydraulically operated.

Two folding cleats will be provided on the edge of the door for tender and water toys mooring (when the door is open).

## 02.50 STAIRS, LADDERS, GANGWAYS, TECHNICAL FLOORS

### 02.51.02 INTERNAL STAIRS

Internal stairs in the guest areas will have aluminum structure, properly covered as for interiors book. The stair leading to the crew area will have aluminium structure and will be properly covered as for interiors book.

Stainless steel ladders/futtock staffs will be provided for access to technical rooms.

### 02.52.01 GANGWAY

An hydraulic retractable telescopic gangway will be fitted. The control panel will be recessed into bulwark next to the gangway.

Radio-operated remote control system for extention and retraction of the gangway from the quay will be supplied.

The gangway will be in polished stainless steel with removable polished stainless steel AISI 316 L stanchions. Gangway floor will be in grating teak.

A door bell will be installed, separated from the gangway.

### 02.53.04 SWIMMING LADDER

One manual/removable AISI 316 stainless steel swimming ladder will be provided on the port side of the bathing platform.

The steps will be made in teak.

### 02.54.00 FALSE FLOORS

In accommodation spaces, where the floor is not laid on a structural deck, a false floor will be installed supported by aluminium pillars and profile frames.

### 02.54.01 ENGINE ROOM FLOORING

Aluminium knocked plate flore will be provided in engine room.

Removable or hinged sections will be fitted in way of valves, filters, etc. where quick manoeuvring or access is required.

## 02.60 HANDRAILS, PILLARS, SUN AND WIND PROTECTIONS

### 02.61.00 EXTERNAL METALLIC HANDRAILS

Polished stainless steel handrails prevalently made by tube diameter 42,4 mm, 33,7 mm and 26,9 mm as shown on the profile as per Benetti standard will be provided:

- main deck sides bulwark,
- aft upper deck bulwark,
- aft sun deck bulwark,
- sides facing outboard of the passage from wheelhouse to forward mooring area and of the adjacent sunpad,
- around deck opening for aft stairs on upper deck and on sun deck,
- aft and side stairs from main deck to upper deck,
- aft stair from upper deck to sun deck,
- two gates will be fitted aft, at main deck level, on the stairs leading to the bathing platform,

### 02.62.00 ENGINE ROOM HANDRAILS

Around main engines removable handrails made of polished stainless steel tube AISI 304 will be fitted.

### 02.64.01 WINDSCREEN

A windscreen made of stainless steel frame provided with plexiglass screen will be installed on the forward bulwark of the sun deck.

## 02.70 LIFTING DEVICES

### 02.71.00 DUMBWAITER

A dumb waiter connecting main deck, upper deck and sun deck will be installed.

### 02.73.01 TENDER AND PERSONAL WATER CRAFT HANDLING SYSTEM

One electro/hydraulic system with winch and trolley mechanism will be provided for the launching and the haulage of the tender and another one will be supplied for one PWC. They will be locally controlled.

### 02.75.01 EXTERNAL RAILS

External rails will be provided on both superstructure sides, in correspondence of the external windows at side, to allow crew to clean them.

Track lines will be fitted in way of the sky-lounge, Owner's suite and galley.

Tracks will be in anodized aluminium and will be provided with sliderod cars with pivoting shackle top. One slinging for crew use will be provided.

## 02.80 VARIOUS OUTFITTINGS

### 02.81.01 ZINC ANODES

Zinc anodes will be installed in the hull according to Benetti standard to protect piping and metallic equipment from galvanic erosion.

### 02.82.01 DRIP TRAYS

Drip trays will be fitted under machinery and equipment that may leak or discharge fluids or condensate when in use or being serviced. They will be built in aluminium alloy or composite material.

### 02.82.03 GUARDS

An aluminium alloy rotating platform will be fitted to cover the gap between the stern door, when in open position, and the bottom of the garage. The platform will be hinged on the garage bottom and built in two pieces. When the door is open, the platform may be kept in vertical position, this in order to protect the garage from the sea waves.

### 02.82.05 CHAIN LOCKER LINING AND GRATING

The inner side surfaces of the chain lockers will be lined with high density PVC. A grating shall be fitted on the bottom, material AISI 316L stainless steel.

## 02.82.07 BATTERY BOXES

Batteries will be installed in boxes, design as per Benetti standard.

## 02.82.08 NAVIGATION LIGHTS HOUSING

Side navigation lights will be installed in proper housings integrated in the superstructure.

## 02.82.09 ANTENNAS SUPPORTS

Navigation and communication system antennas will be installed on suitable aluminium basements integrated in the masts or in the superstructure.

## 02.82.11 SHELVING IN STORAGE SPACES

Suitable spaces in the technical areas will be provided to store oil cans and equipment spare parts. The spaces will be fitted out with appropriate flooring and fiddles.

Formica shelves will be installed in the storage spaces.

## 02.82.13 BOAT CHOCKS

Adequates chocks for tender and PWC will be provided, integrated in the launghing ad haulage system.

## 02.82.15 SUPPORTS FOR LIFERAFTS

Supports with cradles will be installed on the upper deck.

## 02.83.01 DRAFT MARKS

Two forward and two aft polished stainless steel draft marks will be fitted.

## 02.83.03 YACHT NAME

On both sides of the Yacht superstructure the Yacht name will be made by an adhesive film, silver colour.

The transom name will be made by 5/10 mm thickness polished stainless steel letters without back lit.

The port of registry will be made by adhesive labels.

The font type will be decided by the Owner and it will be supplied to Benetti during the design stage. Benetti, if requested, can prepare proposal to the Owner.

## 02.83.07 PIPING SYSTEMS LABELS

Main valves, cocks, filters, pumps, electrical components controls, will be clearly identified in the English language by suitable engraved thermoplastic plates.

Operating positions of valves and switches will be marked.

Arrow direction will indicate flow direction and arrow colour will indicate the type of fluid circulating inside the piping system. The Benetti standard colour code will be used.

## 02.84.01 FENDERS

Eight white sausage type fenders will be supplied. The diameter will be 380 mm and the length will be 1470 mm. The fenders will be provided with polyester tails of 4 m, black colour, diam. 14 mm.

## 02.84.03 FENDERS HOLDERS

Eight aluminium alloy leather and wool covered fender holders 150 mm wide will be supplied to be fitted on main deck side GRP bulwarks. They will be provided with cleats and line eyes.

## 02.84.08 STEM PROTECTION

A stainless steel stem protection will be provided.

## 02.85.01 VENTILATION GRIDS

GRP ventilation grids will be provided for:

- engine room,
- main galley,
- main galley hood,
- air conditioning system,
- garage, aft tecnical room,
- engine room fire extinguishing system bottles box,
- batteries boxes above main deck,
- tanks air vent.

Grids will be according to Benetti standard.

### 02.85.02 GAS EXHAUST GRIDS

Stainless steel grids will be fitted on the hull for diesel generators and main engines by-pass gas exhaust.

### 02.85.03 SEA CHESTS GRIDS

Stainless steel grids will be bolted to the hull to protect sea water inlets from risk of obstruction.

### 02.85.04 VARIOUS GRIDS

A stainless steel protecting grid will be provided, as option, at each side of the bow-thruster tunnel.

### 02.85.05 SCUPPERS GRIDS

Stainless steel grids will be provided for scuppers on external decks.

### 02.86.00 HULL AND SUPERSTRUCTURE RECESSES

Recesses will be created in the structure to fit: grids, life buoys, fire hydrants, bunkering and shore discharge connections, lights, deck washdown connections, capstans and windlasses controls, telephone plugs, TV plugs, sockets, speakers, gangway and stern door with relevant controls.

### 02.87.00 FIXED BALLAST

Fixed ballast may be used to adjust list and trim and in order to comply with stability criteria if necessary. Ballast will be made with lead pellets fitted in enclosed spaces.

## 02.90 FIRE & SAFETY APPLIANCES

### 02.91.03 FIRE EXTINGUISHERS

Portable $CO_2$/foam/powder fire extinguishers, stored in suitable places, will be provided as per fire and safety plan. Type and number will be according to Classification Society requirements.

### 02.91.05 FIRE NOZZLES

Fire nozzles will be provided as for rules.

### 02.91.05 FIRE HOSES

Fire hoses will be provided as for rules.

### 02.91.06 FIREMAN AXE

Fireman axe will be provided.

### 02.91.07 FIREMAN SUIT

Fire suit will be provided.

### 02.91.08 BREATHING APPARATUS

Two breathing apparatus will be provided.

### 02.91.09 FIREFIGHTING BLANKET

Two blanket will be stored in a suitable place into the galley.

### 02.91.10 MEDICAL KIT

A medical kit will be provided.

### 02.93.02 LIFE RAFTS

Four life rafts for ten people each, fitted with hydrostatic release, will be provided on sun deck.

### 02.93.03 LIFE BUOYS

The following life buoys, with painted Yacht name and port of registry will be provided:

- n° 2, with buoyant line, on main deck aft,
- n° 2, with self-igniting light and self-activating smoke-signal, fitted outside the wheelhouse doors.

## 02.93.04 PARACHUTE FLARES

Parachute flares (6 pieces) and floating smoke signals (2 pieces) will be provided.

## 02.93.06 LIFE JACKETS

Nr. 17 life jackets plus n° 5 for children will be provided.

# 03 AUXILIARY MACHINERY

# 03.10.1 BILGE AND FIRE EQUIPMENT

## 03.11.01 FIRE PUMP

One electric self priming pump will be provided in the engine room for fire extinguishing system.

A diesel motorpump will be provided for emergency.

## 03.11.02 BILGE PUMPS

One electric self priming pump will be provided in the engine room for main bilge system.

A diesel motorpump will be provided for emergency service, used also for fire system.

One electric pump will be provided for the garage bilge system.

One electric submersible pump will be provided for the fwd peak, between cxhain lockers.

## 03.12.02 GALLEY HOOD DUCT FIRE EXTINGUISHING SYSTEM

A $CO_2$ or FM200 system will be installed in the galley hood exhaust duct. Release will be manually activated with pressure switch to close the duct and to stop the ventilation.

## 03.12.03 ENGINE ROOM FIRE EXTINGUISHING SYSTEM

A fire extinguishing system will be installed according to Manufacturer requirements, with adequate nozzle and a release handle situated in the emergency control panel outside the engine room.

# 03.20 FUEL OIL AND LUBE OIL EQUIPMENT

## 03.21.01 FUEL OIL TRANSFER PUMP

The transfer system shall allow to transfer from each tank to each other (service included) by means of n° 1 electric transfer pump and n° 1 hand pump as emergency.

### 03.21.04 FUEL OIL FILTERS

Filters, equipped with vacuum gauges and water sensor, will be installed for main engines and diesel generators:

- main engines: a two elements filter (one working, one spare), each fitted with by-pass, according to the main engines Manufacturer instructions.
- diesel generators: a two elements filter (one working, one spare), each fitted with by-pass, according to the diesel generators Manufacturer instructions.

## 03.30 SANITARY EQUIPMENT

### 03.31.00 SANITARY SYSTEM

Collecting tanks with their own transfer pump will be provided in the lower deck for the grey waters coming from various users (sinks, shovers, bath tubes, laundry machines, fan coils drain).

Ceramic wc will be provided for crew and guest area. They will have incorporated pumps for the transferring of black waters to the sewage/grey water tank.

### 03.31.03 SEWAGE AND GREY WATERS PUMP

Two electric driven sewage / grey waters pumps will be provided; one pump is spare of the other

### 03.31.05 SMELL SYSTEM

An oxidation system will be provided to eliminate bad smell from black/grey waters tank air vent.

## 03.40.01 HYDRAULIC EQUIPMENT

### 03.42.01 STERN HYDRAULIC POWER UNIT

One e/hydraulic power pack will be fitted to operate the gangway and to operate the stern door, and trollies for tender/PWC launching and haulage.

### 03.42.06 HULL DOOR MECHANISM

Rams will be provided to allow stern door rotation. The door will be locked using stainless steel pins. Microswitches will allow monitoring of the door closure.

# 03.50 FRESH WATER EQUIPMENT

## 03.51.01 FRESH WATER PUMPS

Two electrical pumps, connected with a pressure tank, with inverter speed regulation will be provided.

## 03.51.02 HOT WATER PUMPS

Two hot water circulating pumps (one in service, one in standby) will keep constant temperature in hot water ring lines.

## 03.51.04 WATER MAKER

One reverse osmosis water maker will be fitted with all necessary gauges, sand filters with back washing, high and low pressure pumps, automatic and weekly fresh water washing of the system.

Nominal production 180 lt/h at 25° C sea water temperature.

## 03.51.05 WATER HEATERS

Two electric hot water stainless steel heaters with capacity of 150 litres each will be fitted.

## 03.51.10 MINIPOOL

One minipool will be fitted on the sun deck as per general arrangement.

# 03.60.1 SEA WATER COOLING EQUIPMENT

## 03.61.01 SEA WATER COOLING PUMPS

Main engines and generators have their own sea water pump.

# 03.70 AIR VENT AND SOUNDING EQUIPMENT

## 03.71.01 LEVEL SWITCHES

Level switches will be installed in the bilges of each compartment near bilge suction, connected to alarms in the monitoring system.

A level switch will be provided for the collecting fuel oil air vent tank.

A level switch will be provided for the garage scuppers tank to control the relevant pump.

## 03.71.02 LEVEL GAUGES

Remote gauges with high and and low level alarm will be provided for fuel oil tanks and fresh water tank.

Remote gauges with high level alarm will be provided for clean oil, dirty oil, sewage/grey waters tank.

The level value will be displayed in the monitoring system.

High level alarm will be provided for fuel oil vent box.

# 03.80 GAS EXHAUST EQUIPMENT

## 03.81.01 EXHAUST DUCTS

Each main engine exhaust system will have a dry insulated duct, made of Fe360 steel and internal AISI 304 perforated sheet.

Each diesel generator exhaust system will have a GRP wet silencer to reduce noise emission.

## 03.81.03 GAS/WATER SEPARATORS

Each diesel generator exhaust system will have a GRP gas/water separator.

## 03.81.04 EXHAUST VALVES

Butterfly valves, electrically operated will be provided on the by-pass discharge lines for the main engines.

# 03.90.01 VARIOUS AUXILIARY EQUIPMENT

## 03.91.01 RESILIENT MOUNTINGS

Main engines exhaust ducts and rotating machinery, with the exception of windlasses and capstans, will be installed on resilient mountings. Mountings will be selected according to the weight and the characteristics of the machinery, to reduce vibrations transmission to the structure.

## 03.91.02 VACUUM AND PRESSURE GAUGES

Vacuum and pressure gauge sets, provided for main pumps, will be arranged in a support as close as possible to the relevant pump.

# 04 PIPING

# 04.10 BILGE AND FIRE PIPING

## 04.11.01 BILGE AND FIRE PIPING

Each watertight compartment will have a separate bilge suction, with electric valve, connected through a bilge manifold to the electric pump.

For the garage bilge will be used a dedicated pump for discharge outboard.

Bilge lines material will be copper/CuNi 90-10.

The garage will be protected by a spray sprinkler system connected to the main fire line by a manually operated valve.

Fire hydrant valves, with fire hoses and nozzles will be fitted, in the following positions:

- n° 1 on engine room main access,
- n° 1 on stbd passageway on main deck
- n° 1 on upper deck, aft area,
- n° 1 on forward area main deck,
- n° 1 on sun deck,
- n° 1 on crew area.

The hawse pipes will be connected to the fire manifold for sea water chain washing.

Fire lines material will be CuNi 90-10 of the pressfitting type.

The anchor hawse pipes will be connected to the fire manifold to supply sea water for chain washing.

# 04.20 FUEL OIL AND LUBRICATING OIL PIPES

## 04.21.01 FUEL OIL PIPING

Main fuel oil tanks and one service fuel oil tank will be fitted in the hull bottom as per tanks capacity plan.

A stainless steel AISI 304 vent box on will be fitted in the engine room.

An AISI 304 manifold will be provided in the engine room to transfer the fuel from each tank to each other.

Emergency cut-off quick closing valves with remote control outside engine room will be provided for the service tank.

Filling stations will be located on main deck sides, one port and one starboard, and will be able to delivery the fuel to each tank. Tanks have to be filled by gravity only.

Pipes will be made of stainless steel AISI 304 seamless type. Connections to main engines and generating sets will be done with flexible pipes with oil resistant synthetic rubber. Valves and connections will be in brass.

### 04.21.02 LUBE OIL PIPING

Two structural GRP tanks will be provided, one for clean oil and the other for dirty oil.

Shipyard will supply:

- n° 1 dirty oil pump,
- n° 1 clean oil pump,
- fixed piping between pumps and tanks,
- fixed piping for oil transfer from dirty oil tank to shore facility.
- hoses with quick release for oil transfer in engine room.

## 04.30 SANITARY AND SCUPPERS PIPES

### 04.31.01 SCUPPERS AND DRAINAGE PIPING

A scuppers and drainage system will be provided to collect and discharge outboard the washdown and rain waters from external decks.

Drainage piping will be provided scuttles communicating with the external, inside external lockers, for hatches and hard top.

Pipes outside engine room will be made of PVC. They will be in Cu-Ni 90-10 from main deck level to outboard penetration.

In engine room the pipes will be Cu-Ni 90-10.

Ooutboard discharges consisting of hull penetration properly sealed will be provided according to the system diagram.

### 04.31.02 SANITARY PIPING

A black/grey water tank will be fitted under the guest area as for tanks capacity plan.

Wash basins, showers, bath tubes and laundry machines will discharge into collecting tanks that will be installed in the lower deck. By the relevant pumps and through a common manifold, the grey waters will be delivered to the grey waters tank.

Washing machines and dishwashers will discharge to the black/grey waters tank.

Galley will discharge directly into the black/grey waters tank by gravity.

WC waters will be delivered to the black/grey water tank by their own pump.

Piping will be made in PVC outside the engine room and AISI 316 pipes in the engine room.

Connections will ensure a smooth inner pipe surface without steps or hindrances to the flow. All piping will be installed as per the system Manufacturer recommendations.

The black/grey water tank will be provided with high level alarm.

The black/grey water can also be discharged by an outlet located at side of the superstrucutre.

The black/grey waters tank can be discharged overboard when allowed by international regulations.

In case of failure of one pump, it can be used in emergency the other one to discharge the tank, after having suitably operated section valves.

## 04.40 HYDRAULIC PIPES

### 04.42.01 HYDRAULIC SYSTEMS PIPING

Two electro hydraulic power pack will be fitted for:

- steering gear,
- gangway and transom door and trollies for tender and PWC launching and haulage.

Pipes material: steel ST 37.4. Flexible hose will be used only for the connections.

## 04.50 FRESH WATER AND AIR CONDITIONING WATER PIPES

### 04.51.01 FRESH WATER PIPING

One fresh water tank will be fitted in the crew area bottom as for tanks capacity plan. Cold and hot water lines will be provided to feed the various users.

The hot water will be distributed onboard by a ring, a circulating pump will keep the constant temperature along the ring. Hot water pipes will be insulated.

Filling lines will be provided on the main deck on port side, starboard and aft; a silver ions station and a water softner will be fitted in the filling line before the fresh water tank.

The water maker production will be delivered directly into the bottom tank. An active carbon filter and UV lamp will be installed from the pumps to the users.

Hand held shower with hot and cold water will be provided for the stern platform.

The following wash down connections, integrated into the fresh water system, will be provided:

- n° 2 on main deck, one on each corridor,
- n° 1 on foredeck, manoeuvring area,
- n° 2 on upper deck, one aft and one forward,
- n° 1 on sun deck,
- n° 1 in garage,

Water supply will be provided to the windscreen jets in the wheelhouse.

Piping in engine room will be in pressfitting AISI 316L stainless steel, outside engine room will be in multilayer. Valves and connections in brass will be used.

### 04.52.01 AIR CONDITIONING PIPING

Pipes for air conditioning chilled/heated water will be made in copper in engine room and multilayer outside engine room.

## 04.60.01 SEA WATER COOLING PIPES

### 04.61.01 SEA WATER PIPING

In the engine room will be provided a port and a starboard main sea cheast, with butterfly valves, Cu-Ni 90-10 filters body with AISI 316 strainers interconnected by a manifold with a connection for main engines, generators, sewage treatment, fire pump.

Secondary sea chests will be provided, one for water maker, one for main chiller and one for emergency motorpump.

All pipelines carrying sea water will be made of CuNi 90-10.

Connections to the engines will be flexible.

## 04.70 AIR VENT AND SOUNDING PIPES

### 04.71.02 AIR VENT LINES

All bottom tanks will be provided with adequate air vent line.

Fuel oil tanks vents will be connected to a single line, that will be led above the sun deck. Material will be stainless steel AISI 304.

Frash water vents will be led above the main deck. Material will be AISI 316.

Sewage/grey waters vents will be led above the sun deck. Material will be AISI 316 up to main deck and PVC above main deck.

## 04.80.01 GAS EXHAUST PIPES

### 04.81.01 MAIN ENGINES PIPING

The main engine exhaust is equipped with flexible connection at the engines. The hot gas of each engine will be led through a dry duct, a water injiection sleeve and GRP duct to the hull side into the engine room area.

The main outlet is located below the water level with a manually operated butterfly valve, the minimum outlet (by-pass) is located above the water level with an electrically operated butterfly valve according to engines RPM.

The injection sleeve is provided to cool down the gases before they blow along the hull. The piping is flexibly supported on the floor and sides.

The system will ensure compliance with Diesel Engines Manufacturer recommended backpressure.

### 04.81.02 GENERATORS PIPING

The generating sets will have a reinforced rubber line from outlet to the muffler, that will be connected to the hull side through a Cu-Ni 90-10 piping for gas exhaust and for sea water discharge.

## 04.90 VARIOUS SYSTEM EQUIPMENT

### 04.91.02 SCUPPERS BOXES

Collecting wells of GRP materials will be provided in number and position to ensure proper water drainage and discharge from the decks.

### 04.91.03 PIPES FLEXIBLE CONNECTIONS

All piping connected to rotating and vibrating mechanical equipment will be connected with flexible couplings, oil resistant material will be used on fuel and oil systems.

### 04.91.04 PIPE CLAMPS

All pipe work will be installed without stress and with adequate clamps fixed to the Yacht structure.

Hydraulic oil piping will be supported by plastic saddle clamps with rubber inserts.

Chiller water pipes will be connected to the Yacht structure with pre insulated clamps.

# 05 VENTILATION AND AIR CONDITIONING

# 05.10 ACCOMMODATION VENTILATION AND AIR CONDITIONING

## 05.10.00 AIR CONDITIONING SYSTEM GENERAL

The air conditioning system in the accommodation spaces shell meet the following design condition:

| | | |
|---|---|---|
| Summer | Outside air | 35 °C 95 °F R.H. 90% |
| | Inside air | 22 °C 72 °F R.H. 55% |
| | Sea water temperature | 32 °C 90 °F |
| Winter | Outside air | 0 °C 32 °F |
| | Inside air | 22 °C 72 °F |
| | Sea water temperature | > 8 °C 47 °F |

## 05.11.02 FAN COILS

Accommodations will be provided with local fan coil units equipped with four way by-pass valve, thermostat, fan, heat exchanger, dust filter an dryp- tray. Fan coils will be fed by lines from main chiller unit.

## 05.11.03 MAIN CHILLER UNIT

A main chiller unit serving the fan coils and the air treatment units will be fitted in the chiller room (aft stbd technical room in the lower deck).

The chiller unit will provide cold water during Summer season and hot water during Winter season, by reverse cycle working.

The water will be distributed by using the same piping.

The chiller unit will be composed by three equals modulus, with ermetic compressor and soft-starters.

### 05.11.04 AIR CONDITIONING SEA WATER PUMPS

Two sea water pumps will be provided for the chiller unit and auxiliary cooling system described in para 05.11.08.

### 05.11.05 AIR CONDITIONING FRESH WATER PUMPS

Two fresh water pumps will allow chiller water circulation.

### 05.11.06 AIR TREATMENT UNITS

Units for the primary treatment of the air will fitted onboard. They will be equipped with filter, damper, heat exchanger and fan.

### 05.11.07 FANS AND EXTRACTORS

Extractors will be provided for air exhaust from the accommodation and the galley hood, a fan will be provided for the galley hood.

### 05.11.08 AUXILIARY COOLING SYSTEM

An independent cooling system, with n°2 circualting pumps, will be provided for the racks of BEST system and cooling of technical room in way of engine room access.

### 05.12.02 AIR CONDITIONING DUCTS

Air conditioning delivery ducts will be made in pre-insulated galvanized steel.

Air conditioning delivery ducts for the fan coils will be of PVC insulated.

## 05.30 ENGINE ROOM AND TECH. SPACES VENTILATION SYSTEM

### 05.31.01 ENGINE ROOM FANS

Two axial flow fans will be installed for intake.

Two centrifugal flow fans will be installed for exhaust.

The fans will be controlled by inverter, with adjustable speed. They will be soft mounted. A control panel will be provided in the engine room.

## 05.31.02 ENGINE ROOM FIRE DAMPERS

Four fire dampers will be fitted to close the engine room ventilation trunks, as per Classification Society requirements.

## 05.31.03 ENGINE ROOM FANS SILENCERS

Silencers will be installed in the engine room air intake trunks to reduce the noise generated by the air flow and intake fans.

## 05.31.04 MOISTURE SEPARATORS FOR ENGINE ROOM

Moisture separators will be provided in correspondence of the engine room air intake grids.

## 05.32.01 VENTILATION OUT OF ENGINE ROOM

Technical spaces where necessary, will be ventilated to ensure adequate air changing in order to avoid overheating.

Where the heat dissipated by electrical equipment may rise considerably the room temperature, the space will be exhausted by forced ventilation, in order to avoid the heat transfer to the adiacent air conditioned space.

# 06 ELECTRIC AND ELECTRONIC SYSTEM

# 06.10 EMERGENCY ELECTRICAL SYSTEM

## 06.11.0 EMERGENCY LIGHTING SYSTEM

The emergency lighting system will be installed in accordance with the Classification Society requirements using 24V DC batteries and dedicated battery charger.

In correspondence of stairs, corridors, wheelhouse, crew mess, any room exit and escapes emergency lights will be provided. They will switch on automatically in case of failure of the AC system.

Accommodations emergency lights will be normally supplied with 24V AC circuits. An automatic device will be provided for switching from main circuit to the 24V DC emergency one.

Engine room and main technical spaces will be provided with dedicated emergency light(s).

In the engine and technical rooms, suitable lamps will be fitted in correspondance of escape and main switchboard.

## 06.11.01 EMERGENCY BATTERIES

One group of 24V DC batteries for emergency. Capacity as per Classification Society requirements.

# 06.20 LOW VOLTAGE SYSTEM

## 06.21.01 BATTERIES , GENERAL

All batteries will be installed in battery boxes as per Classification Society requirements.

All batteries will be GEL or AGM type according to their usage.

## 06.21.02 RADIO BATTERIES

One group of 24V DC batteries for radio equipments. Capacity as per Classification Society requirements.

## 06.21.03 SERVICE BATTERIES

One group of 24V DC batteries for service. Capacity as per Classification Society requirements.

## 06.21.04 ENGINES STARTING BATTERIES

Two groups of 24V DC batteries for main engines starting. Capacity as per engines Manufacturer requirements. Each group will be dedicated to one main engine.

Two groups of 24 V DC batteries for diesel generators starting. Capacity as per generators Manufacturer requirements. Each group will be dedicated to one diesel generator.

A selector for the temporary cross connection between the two main engine starting battery will be provided as per rules.

## 06.21.05 BATTERY CHARGERS

Alternator will be provided on each main engine and generator charging the relative battery set.

The following manual/automatic battery chargers will be installed:

- n° 1 main engine battery sets charger provided with charging divider,
- n° 1 diesel generator battery sets charger provided with charging divider,
- n° 1 service battery set charger,
- n° 1 emergency battery set charger,
- n° 1 radio battery charger,
- n° 1 back-up radio/service/emergency sets charger,

## 06.22.02 GROUNDING SYSTEM

Grounding system

A syntherized bronze ground plate will be fitted externally onto the hull bottom.

A copper tape ring of suitable section will be fitted all around the Yacht.

All the machinery, electrical motors, equipment, boards will be connected to the electric earth and this one to the ground plate.

All the minor features will be earthed by means of the ground wire.

A lightning conductor will be fitted at mast top and directly connected to the ground plate by a dedicated wiring.

Cathodic protection

Sea chest, piping and equipment in contact to the sea water will be connected by copper or tape to the zinc anodes fitted onto the transom below the waterline level for cathodic protection.

## 06.32.00 ELECTRIC POWER SYSTEM, GENERAL

General

Electrical equipment, wiring, fixtures, boards, switches, etc. will be designed, located, installed and tested according to the Classification Society rules, regulations and requirements.

Electrical equipment will be selected and located to ensure adequate protection against damages from water, oil, humidity, vibration and will be arranged in such way to facilitate access for maintenance.

Distribution

The electrical distribution will be as hereafter described:

| | |
|---|---|
| Main machinery | 400V AC / 50Hz / 3 phases |
| Lighting and household appliances, stereo, TV sets and other low power users | 230V AC / 24V AC, single phase |
| Emergency lighting system | 24V DC battery system, |
| Service equipment | 24V DC battery system |
| Radio equipment | 24V DC battery system |

The AC power will be supplied by two diesel driven generator sets and as alternative by a shore power system.

Diesel generators and shore supply switches will be of removable type, so that they can be substituted without causing black out.

Automatic paralleling system for the two generators will be provided

Shore supply system

The Yacht may receive shore power supply by means of one 100 A shore power inlet sockets.

One 20 mt shore power cables of suitable section will be provided.

One 70 kVA 400 V (inlet) / 400 V (outlet), 3 phases + neutral, 50 Hz shore insulating transformer will be provided.

Seamless Transfer System between Generator and Shore Power Supply will be provided.

Electric motors

Electric motors will be:

- one phase for small (tipically for small loads),
- three phases induction type,
- protection grade (IP) according to Classification Society rules,
- class F insulation.

Starter devices and panels

Where possible, starters and protections of equipment located in the engine room will be centralised in the main switchboard.

Start-stop push buttons can be positioned on the main switchboard or locally near the users according to the engine room available space.

Steering gear motor start panel will be provided with:

- alarm for overload,
- single phasing,
- loss of power.

All the starter devices will be of the direct type.

All three phase motors rated 10HP and higher shall be provided with soft starters or inverters .

Cables

Cables with stranded wires suitable for marine use will be used. All supply cables for electronic equipment shall be of the shielded type. Cables will be of the multiple conductors type for all AC circuits and meeting Classification Society requirements. All cables connected to terminal blocks will have 'ferrule end connectors' or other approved means of connection as per the Classification Society requirements. All the wires and terminal strips will be marked with identification code in the switchboard, in junction boxes and at the termination of the wire. Shielded cables will be used for low power equipment liable to be affected by strong magnetic or electrostatic fields. All connection boxes (also in the accommodations) to be accessible as per Classification Society requirements. Penetration of watertight bulkheads and all electrical switchboards and boxes will be done as per Classification Society requirements and with approved penetrations systems. Especially where water or humidity can be present care to be taken to match materials to avoid electrolytic corrosion.

## 06.32.01 ELECTRICAL PANELS

Main switchboard

The main switchboard will be installed in the engine control room.

All front panels will be hinged or removable with quick release locks for easy access.

Ventilation grids will be provided at each side.

On the main switchboard front panel will be installed:

For each generator: Volt, Ampere, kWatt and Hertz meter,

For shore supply: Volt, Ampere, kWatt , Hz and sequence meter.

For loads: automatic circuit breakers with integrated starter.

Monitoring system touch panel

The main switchboard will contain two main bus-bar interconnectable by a bus-bar connector. If the connector is open, each generator can feed the users of each bus bar. The shore transformer can feed both bars or one of them if the bar connector is open. We can also feed one bus-bar with a generator and the other with the shore connection.

All the redundant machinery and equipment will be equally distributed on the two bus-bars. A not essential user trips device will be acted in case of generators overload.

A not essential user trips device will be acted in case of generators overload in order to avoid generators power off.

Distribution panels

Sub-switchboards will be installed for local distribution of electrical power. They will contain automatic circuit breakers for different lines or circuits. They will be built in a light alloy or aluminium box with painted panels; to be covered by a decorative door matching with the surrounding joinery. For technical spaces industrial type boxes will be used. Main panel and sub panels will be drip proof type as per Classification Society requirements. A sub-switchboard will be installed in the wheelhouse, with AC and DC circuit breakers for the navigation and electronic users and all external lights.

The distribution panels will be installed in the following areas:

- main saloon,
- guest accommodations,
- crew accommodations,
- Owner's area,
- galley,
- upper saloon,
- wheelhouse.

# 06.40 LIGHTING AND PLUGS

## 06.41.00 LIGHTING SYSTEM

Proper LED lighting will be provided inside and outside as here after indicated.

Dimmers will be fitted for:

- Ceiling spotlights in Owner's cabin, saloons, guest cabins and public areas.
- bed lights in Owner's and table lamps (if present).

Accommodation lighting will be chosen in the Benetti Standard.

Low intensity red lights will be installed in wheelhouse for safety running of the Yacht during night navigation.

Exteriors: overhead waterproof lights at superstructure ceilings and foot waterproof lights will be installed.

Lights will be 24 V AC and 230 V AC, emergency lighting will be 24 V DC.

All lighting circuits protected by fuses fitted on distribution panels as described in the above paragraph.

External fixtures, or fitted in technical areas will be suitable for marine use.

Accommodation light switches and sockets will be chosen in the Benetti Standard.

## 06.41.01 ENGINE ROOM AND TECHNICAL SPACES LIGHTS

In the engine room neon lights will be fitted. Technical spaces will be fitted with 24 V DC lights in IP54 housing. Some emergency lights will be incorporated in the existing fixtures.

In particular:

- engine room technical spaces and stores: fluorescent fixtures and waterproof sockets will be provided.

## 06.41.02 ACCOMMODATION LIGHTS

The position of the light fittings, sockets and switches will be shown on the interior's book.

Lighting will be according to the interior's book, to include dimmered lighting in the public area and Owner and guest suites.

Wheelhouse: ceiling lights with a white and a red bulb, lights above chart table and above other equipment where necessary, switches and 230 V sockets where needed. All instrument and pilot lights in wheelhouse console will be provided with dimmers.

In particular:

- wardrobes: an automatic switch-on light will be provided at Guest and Owner wardrobes.

## 06.41.03 EXTERNAL LIGHTS

LED lights will be provided for deck lighting. Ceiling and foot lights will be flush mounted.

The following lights will be fitted:

- two lights will be recessed in the upper deck structure in way of the two aft bulwark doors on main deck; they will be of the halogen type.
- footlights all the way around main deck, upper deck, and sun deck;
- ceiling lights on main deck, upper deck and sun deck rollbar with dimmers;
- foot lights in way of external stairs, in the centre of the rise.

## 06.44.01 EXTERNAL FLOOD LIGHTS

One search light halogen type, 2 x 55 W lamps.

## 06.44.03 SIDE DOORS LIGHTING

Fibre optic lights on the upper deck structure to illuminate the embarkation area in way of mid side access; they will be in PMMA, ½ inch diameter, white colour light. One light will be fitted on each side; one 230 VAC light box will be provided for each light.

## 06.44.04 ELECTRICAL FITTINGS IN ACCOMMODATION

All accommodation light switches and equipment will be as per Interiors book.

All lighting circuits will be protected by circuit-breakers fitted on distribution panels.

## 06.44.05 ACCOMMODATION LAMPS

All lighting will be installed as per detailed decoration list and according to Benetti standard.

## 06.44.07 ACCOMMODATION CEILING LIGHTS

Spotlights will be installed in accommodation ceilings as per interiors book.

Waterproof spotlights will be installed in bathrooms and showers.

### 06.44.10 LINEAR LIGHTING

Linear lights to be fitted for indirect lighting as per interiors book in guest and Owner's areas.

### 06.44.11 WARDROBE LIGHTING

Internal lighting to be provided inside all wardrobes as per interiors book.

## 06.50 NAVIGATION COMMUNICATION AND SIGNALLING EQUIPMENT

### 06.50.0 NAV/COMM/SIGN EQUIPMENT

The following controls will be provided in Wheelhouse:

- Steering actuator with wheel,
- Bow thruster control lever and running indicator,
- Main engines throttles,
- MMEE Key, Start/Stop Buttons and Alarm Signal
- Emergency stop for main engines,
- Rudder angle indicator,
- Fin stabilizers control panel.

The following controls will be provided in Wing stations:

Two control stations with 8.4" displays will be positioned externally at both sides of the wheelhouse and will include all the necessary commands and instruments for manoeuvring the Yacht in mooring operations, that is:

- steering tiller,
- slave bow thruster control lever,
- horn,
- main engine throttles,
- MMEE start/stop buttons and alarm signal, emergency stops.

The following equipment will be installed:

INTEGRATED NAVIGATION SYSTEM "iBridge"

GENERAL DESCRIPTION

**Visualizing system including:**

- No. 2 LCD monitor (standard) 15 " IP 65 marinized,
- No. 1 NMEA Display 3,5"
- No. 2 cartography systems, (charts excluded)
- N° 2 cartography softwares.

**Control system including**

- N° 1 Control trackball
- N° 2 touch panel control LCD 15'', for the control of the following users:
  - Radars
  - Echosounder
  - CCTV (Option)
  - Wipers,
  - Horn,
  - Steering pumps,
  - Monitors dimming
  - Search lights,
  - Steering mode.
  - Monitoring system

**Navigation sensors including:**

- No. 1 radar, 64mn, 6KW
- No. 1 Navnet 2D BB
- No. 1 Graphic depth / log transducer
- No. 1 GPS
- No. 1 Overhead mounting magnetic compass for WH.
- No. 1 Magnetic compass for Fly.

**Charting plotter system including:**

- No. 1 Chart Plotter integrated with radar/echo system + charting software (charts excluded)
- No. 1 Independent Chart System + charting software (charts excluded)

**Wheather station including:**

- Transducers interface,
- Ultrasonic wind and pressure/temperature sensor on mast (integrated),
- Integrated GPS

**Autopilot and manouvering system including**

- No 1 autopilot system, micro-processor controlled, with feedback system
- No. 1 Rudder angle indicator
- No. 1 feedback unit

## 06.52.01 NAVIGATION LIGHTS

Navigation lights (single light execution) will be provided. They will comply both for position and type with the International Regulation for Preventing Collision at Sea (Colreg 72). The navigation lights panel will be fed by 24 V DC from emergency and service battery banks. Control of navigation lights in the wheelhouse monitor, with audible and visual alarm in case of failure. Included in integrated navigation system.

## 06.52.02 INTERCOM SYSTEM

One emergency internal communication system will be fitted in:

- wheelhouse,
- engine room,
- emergency steering location.

## 06.52.04 LOG

One speed-log system will be provided . Included in integrated navigation system.

## 06.52.06 ECHOSOUNDER

One echosounder will be provided with dual frequency transducer (depth, log, water temp) with PC interface for chart plotter software. Included in integrated navigation system.

## 06.52.07 MAGNETIC COMPASS

One ceiling mounted magnetic compass will be provided in wheelhouse

## 06.52.08 WIND SYSTEM

One wind system with no moving parts and with GPS, air temperature and pressure sensors will be supplied. Included in integrated navigation system.

## 06.52.09 VHF SYSTEM

The following equipment will be installed:

- No. 1 VHF class D (wheelhouse),
- No. 3 portable VHF complete of hand free kit

## 06.52.11 X-BAND RADAR

One 6 kW- 64 nm - X band - 4 ft antenna radar will be provided. Included in integrated navigation system.

One radar interface will be provided.

## 06.52.14 AUTOPILOT

One autopilot will be provided comprising of n° 1 NFU tiller interface, n° 1 rudder angle indicator, n° 1 feedback unit. Included in integrated navigation system.

## 06.52.16 GPS SYSTEM

n° 1 GPS system included in integrated navigation system.

## 06.52.17 TELEPHONE SYSTEM

n° 1 VOIP telephone system for internal communications.

## 06.52.18 CHART PLOTTER

One system for charting will be provided. Included in integrated navigation system. Charts are not included.

## 06.52.21 HORN

A chromium plated pneumatic three tones horn as per the Flag Authority requirements will be provided. Controlled by the integrated navigation system.

## 06.52.23 TELEPHONE UNITS

N° 13 VOIP telephones connected to the B.E.S.T network will be provided.

## 06.60 MONITORING AND AUTOMATION SYSTEM

## 06.61.01 MONITORING SYSTEM

An integrated Yacht monitoring system will be provided.

The system is composed by two intelligent units, one is located in the engine control room, the other is located in the wheelhouse, they are connected by redundant LAN net. One is the data back-up and recovery software for the other, assuring the total control of the system even with only one unit working.

The main system's components are:

- N°2 Touch Panels : one 15" in wheelhouse ( part of integrated navigation system) and one 15" in engine room.
- N°2 monitoring and control unit (wheelhouse and engine control room),
- field cards (I/O) (sufficient number for the proper working system),
- multiserial cards (sufficient number for the proper working system),
- N°3 cumulative alarms repeater panels (Wheelhouse ,engine room and crew mess ).

The main ship's systems controlled by automation an monitoring system are:

**Power station**

The system is interfaced with the electric generators and the shore line to monitor their electric parameters and operates as supervisor of the electric sources. The system will show the operator the generators status (on/off), if they are in line or not (breaker open/close), the electric parameters (V, A, Hz, W),and will make it possible to start and stop the generators themselves , put them in parallel and vice-versa. The system will monitor some generators alarms: overspeed, low oil pressure, high engine temperature.

The same philosophy is for the shore line, the all electric parameters will be recorded and will be visible as graphics and alfanumeric, showing the real time and recorded value.

**Navigation lights**

The system will monitor and will control the navigation lights.

**Entrances monitoring**

The system will monitor the external entrances.

**Main engines gas exhaust valves**

The system can monitor the gas exhaust valves status of the main engines (manually operated).

**Bilges**

The system controls and display the level of all the ship's bilges

**Tanks**

The system controls and display the level of all the ship's Fuel and Water Tanks

**Main engines**

The system is interfaced with the control units of the main engines, monitoring the status of the engines ,the working parameters and occurring alarms.

**Fans and dampers**

The system will control and will monitor the operation of the four engine room fans and their dampers, either manually or automatically indicating to the operator the status and speed operation. In case of fire in the engine room, the fans will be stopped and the dampers will be closed.

**Batteries and battery chargers**

The system will monitor the status of the batteries and the battery chargers.

**Electric pumps**

The system is interfaced with the starters of the following electric pumps: fuel oil transfer pump, fire pump, bilge pump, black and grey water pump.

**Alarm notification**

The system receives alarm notifications from all ship's main systems ,displays and keeps memory of them. An acustic signal indicates that a new alarm has occurred.

Two alarm panels will be fitted, in wheelhouse and engine room, with audible and visible alarms. One small panel for cumulative alarm will be fitted in Crew mess.

On the panels a comulative alarm will be provided (light + buzzer) in case one of the following alarms occurs:

- Electrical system failure (generator, overload, not essential trip, starting battery, low voltage),
- Bilge level,
- High/low tanks level.
- Main engines,
- Diesel generators,
- Battery chargers,
- Steering gear,
- Fin stabilisers,
- Bow thruster.

### 06.61.04 EMERGENCY STOP SYSTEM

Main engines emergency stops will be provided in wheelhouse, wing stations and E.R.

### 06.61.05 MAIN ENGINES CONTROL SYSTEM

Main engines throttles will be provided in wheelhouse and wing stations.

### 06.62.01 FIRE ALARM SYSTEM

A fire alarm system will be installed with sensors fitted throughout the Yacht of a type as per Classification Society requirements.

The control unit will be fitted in wheelhouse.

One or more heat or smoke detector will be fitted in each cabin, room and technical space according to Classification Society. They will actuate an audible and visible alarm in wheelhouse.

### 06.62.05 SERVICE CALL

A service bell will be installed with audible and visible signalling on two master stations, one in the main deck galley and one in the sky lounge bar.

Calls will be possible from:

- sky lounge,
- main saloon,
- Owner's cabin,
- external dining area on upper deck,

- sun deck,
- dining area.

# 06.70 ENTERTAINMENT EQUIPMENT

## 06.70.00 ENTERTAINMENT SYSTEM

The core of the entertainment/domotics is the B.E.S.T. system which is a complete and modular solution for the distribution of digital services over a single physical infrastructure (Ethernet Cat 5E cabling). The system replaces the infrastructures traditionally employed to provide similar services, enhancing their functionality and simplifying their integration.

The services generally supervisioned by B.E.S.T. system (where present) include:

Audio video functionality: Distribution of audio video streams coming from an internal storage system (video on demand). Function like audio video and images archival and indexing are available.

Voice communication functionality: It involves handling of Yacht internal voice communication, as well as with the outside world **(OPTION)** through diverse channels (traditional PSTN, cellular radio, HF vectors etc.).

Automation and control functionality **(OPTION)**: Any authorized terminal (like touch screens, PDAs, AV clients) can manage lighting, temperature and electric curtains (where present) in Saloons, Owner and Guest areas.

The system is composed of a central rack where all the servers and the storage system devices are integrated; access to services goes through diverse terminals including AV entertainment clients, mobile and handheld devices, phone terminals.

## TV and Stereo Equipment

The following equipment will be installed:

- N° 1 TV/RADIO antenna system for terrestrial broadcasting reception,
- N° 1"BEST" Integrated Entertainment System

## 06.70.01 CREW MESS

- N° 1 TV 22'' LCD HD ready - 16:9
- N° 1 Micro Hi-Fi – AM/FM Tuner - DVD player
- N° 1 pair of loudspeakers

### 06.70.03 TWIN GUEST CABINS

Items to be considered for two cabins.

- N° 1 TV 22'' LCD HD ready - 16:9
- N° 1 Micro Hi-Fi – AM/FM Tuner - DVD player
- N° 1 Pair of loudspeakers
- N° 1 Integrated wi-fi remote control (iTouch)
- N° 1 iPod A/V interface
- N° 1 iPod Dock charge station

### 06.70.04 VIP CABINS

Items to be considered for two cabins.

- N° 1 TV 32'' LCD HD ready - 16:9
- N° 1 Micro Hi-Fi – AM/FM Tuner - DVD player
- N° 1 Pair of loudspeakers
- N° 1 Integrated wi-fi remote control (iTouch)
- N° 1 iPod A/V interface,
- N° 1 iPod Dock charge station

### 06.70.05 CREW CABINS.

Items to be considered for three cabins.

- N° 1 Micro Hi-Fi – AM/FM Tuner - CD player
- N° 1 pair of loudspeakers

### 06.70.07 OWNER'S CABIN

- N° 1 TV 40'' LED full HD 1080P - 16:9
- N° 1 Audio Video Receiver – AM FM Tuner – HDMI Input/Output
- N° 1 "BEST" Audio-Video Client
- N° 1 High quality speaker system surround 5.1 with powered subwoofer
- N° 1 Integrated wi-fi remote control (Mini iPad)
- N° 1 Mini iPad Docking Station
- N° 1 iPod A/V interface

### 06.70.09 GALLEY

- N° 1 Micro Hi-Fi – AM/FM Tuner - CD player
- N° 1 Pair of loudspeakers

### 06.70.10 MAIN SALOON

- N° 1 TV 40'' LED full HD 1080P - 16:9
- N° 1 Audio Video Receiver – AM FM Tuner – HDMI Input/Output
- N° 1 "BEST" Audio-Video Client
- N° 1 High quality speaker system surround 5.1 with powered subwoofer
- N° 1 Integrated wi-fi remote control (Mini iPad)
- N° 1 Mini iPad Docking Station
- N° 1 iPod A/V interface

### 06.70.11 MAIN SALOON DINING (slave of main saloon)

- N° 1 Keyboard for volume control
- N° 1 Pair of loudspeakers

### 06.70.12 EXTERNAL MAIN DECK (slave of main saloon)

- N° 4 marine speakers
- N° 1 Keyboard for volume control

### 06.70.13 WHEELHOUSE

- N° 1 Micro Hi-Fi - AM/FM Tuner - CD player
- N° 1 Pair of loudspeakers

### 06.70.14 CAPTAIN CABIN

- N° 1 Micro Hi-Fi – AM/FM Tuner - DVD player
- N° 1 Pair of loudspeakers

### 06.70.15 SKY LOUNGE

- N° 1 TV 40'' LED full HD 1080P - 16:9
- N° 1 Audio Video Receiver – AM FM Tuner – HDMI Input/Output
- N° 1 "BEST" Audio Video Client
- N° 1 High quality speaker system surround 5.1 with powered subwoofer
- N° 1 Integrated wi-fi remote control (Mini iPad)
- N° 1 Mini iPad Docking Station
- N° 1 iPod A/V interface

### 06.70.17 EXTERNAL UPPER DECK AFT(slave of sky lounge)

- N° 1 Keyboard for volume control
- N° 4 marine speakers

### 06.70.18 EXTERNAL UPPER DECK FORWARD

- N° 1 Marine CD/mp3 Player – Radio Tuner
- N° 2 marine speakers

### 06.70.19 SUN DECK

- N° 1 Marine CD/mp3 Player – Radio Tuner
- N° 4 marine speakers

### 06.70.21 TECHNICAL SPACE

The technical space is located in the Main Deck

### 06.70.22 SERVER RACK

- N° 1 switch managed 24 ports full gigabits,
- N° 1 KVM controller (keyboard, mouse, lcd),
- N° 1 AVoD storage system 2 Tbytes raw RAID System
- N° 1 Voip Server
- N° 1 UPS rack mount,

- N° 1 rack for devices housing,

### 06.70.24 DISTRIBUTED EQUIPMENT

- N° 4 access point WiFi.
- N° 2 Network Switches

# 07 MAIN MACHINERY

# 07.10 PROPULSION MACHINERY

## 07.11.01 MAIN ENGINES

Two four stroke diesel engines suitable for marine propulsion, light duty operation, will be installed on the dedicated foundations in the engine room:

MAN V12-1400, of 1029 kW (1400 mHP) @ 2100 rpm each.

Each engine will have following features:

- Cylinders and arrangement: 12 cylinders in 90°V design,
- Operation mode: 4-stroke diesel engine, watercooled
- Turbocharging: 1-stage exhaust turbocharger with intercooler
- Number of valves: 4 valves per cylinder
- Fuel system: Common Rail direct fuel injection with electronic control,
- Engine lubrication: Closed system with forced feeding, oil cooling and filtering
- Type of cooling: Plate heat exchanger, seawater cooled
- Engine control: Electronic injection control (EDC)
  Electronic engine monitroring including diagnostic unit
- Exhaust gas status: IMO Tier 2, RCD 94/25/EC, EPA Tier 3, 97/68/EC
- Fuel: DIN EN 590

## 07.11.02 GEAR BOXES

A reduction gear box for each engine will be provided, type ZF 3310.

Reduction gear boxes will be fitted to assure over the top outward yacht rotation of the propellers. Reduction ratio determined on relation to the propeller design and propulsion set is 4,478:1. Reduction gear features as per Manufacturer recommendation will be provided.

## 07.11.03 ELASTIC COUPLING

The main engine/gearbox/shaft line configuation will be: reduction gear and engine in the flanged version, thrust bearing with elastic joint from reduction gear to shaft line.

### 07.11.05 RESILIENT MOUNTS

Main engines and reduction gear boxes will be elastically mounted on resilient mounts.

### 07.13.01 SHAFT LINES

A water lubricated bearing shaft line will be provided for each propulsion set.

Shaft material will be made in Aquamet 17, or equivalent, diam. 110 mm.

### 07.13.03 SHAFT BEARINGS

Each shafting will be arranged with one rubber water lubricated bearing in way of propeller bracket and one thrust bearing inside the engine room.

### 07.13.04 SHAFT SEALS

Mechanical seals, with pneumo stop, will be provided inside hull.

### 07.13.05 PROPELLERS

Two high skewed propellers designed to obtain high efficiency and low noise will be provided. They will be made by five nickel-aluminium-bronze blades and hub.

Each propeller will be statically balanced. Blade surface will be finished according to ISO S class.

## 07.30 ELECTRIC POWER GENERATORS

### 07.31.01 MAIN GENERATORS

The generating system will consist of two diesel generators with the following characteristics:

| | |
|---|---|
| Manufacturer: | Kohler |
| Models: | 70EFOZDJ |
| Rated outputs: | 70 kW |
| Rated voltage and frequency: | 400V AC / 50 Hz |
| Number of phases: | 3 |
| RPM: | 1500 |
| Rating: | Full load continuous |

| | |
|---|---|
| Insulation class: | H |
| Tension regulation: | ± 2 % |
| Frequency regulation: | ± 0.5 % |
| Starting system: | 24 V DC |

Each generator will be provided with automatic stop for:

- low oil pressure,
- high water temperature,
- overspeed.

Each diesel generator will be equipped with:

- sound-proof enclosure,
- built-in freshwater circulating and cooling system with heat exchanger,
- oil cooler,
- electronic speed regulators,
- instrument panel mounted outside the soundbox equipped with:
  - starting/stop push buttons,
  - volts, amps and hour meters.

Diesel generators will be provided with isolated ground.

Automatic paralleling system for the two generators will be provided.

### 07.31.02 GENERATORS SOUND SHIELDS

Generators will be enclosed in a sound shield, supplied by the generator Manufacturer.

### 07.31.03 GENERATORS MOUNTING

The engine and generator will be placed on resilent mountings supplied by the generator Manufacturer.

## 07.40.01 SIDE PROPULSION

### 07.41.01 BOW THRUSTER TUNNEL

A GRP tunnel will be provided and will be fixed to the hull by an adequate number of GRP layers.

### 07.41.02 BOW THRUSTER

An electric motor driven bow thruster will be provided, having following features:

- Power: 52 kW/ 400VAC 3 ph
- Insulation Class of electric motor: F
- Protection degree of electric motor: IP 23
- Service factor of electric motor: S6 - 40%
- Inside tunnel diameter: about 500 mm
- Nominal thrust (without grid): 8,1 kN. A thrust reduction of 30% is expected with the installation of tunnel grids

Control joystick will be installed on the wheelhouse console and on wings control panels.

## 07.50.01 STABILIZERS

### 07.51.01 STABILIZER FINS

One pair of non retractable stabilizer fins will be provided for underway operation and at anchor as well.

Fins will be actuated directly by electric motors.

Control panel 24 V DC to be installed in the wheelhouse.

# 08 INTERIORS

# 08.00 INTERIORS

The Interior's styles are based on the Interior's Concept Design, done by Benetti Interior's Designers. The Interior's Concept Design are:

- Classic style
- Modern style

The Interior's style will be shown through a set of renders for the following areas:

- Master Cabin
- Master Bath
- Main Salon
- Vip Cabin
- Vip Bath

Additional renderings will be quoted accordingly.

The renderings will be prepared as per the following process:

- First Stage (one time) – Interior Concept - will be composed by Main Salon Rendering and Interior Design Mood Board, for the definition of interior style,main materials selection and finishing
- Second Stage (one time) will be composed by Vip Cabin, Vip Bath Rendering based on the General Arrangement ,Interior Concept and the contractual definition;
- Third Stage (one time) will be composed Master Cabin, Master Bath and Main Salon Rendering based on the General Arrangement ,Interior Concept and the contractual definition;
- Fourth Stage (one time) will be composed by Sky Lounge and Main Foyer Rendering based on the General Arrangement ,Interior Concept and the contractual definition.

The rendering is purely indicative of style and may include options and/or change order. It do not necessarily correspond to the executive drawings. These images are indicative and show the style and volume environments and may be modified during construction according to technical reasons-executive proposals or modifications required by the customer.Any new rendering or updated rendering not included in the above list will be quoted accordingly.

The accommodation layout will be according to the general arrangement which will be part of the building specification.

All decorative material, loose furniture, fittings, accessories, hardware etc. will be chosen according to the proper interior style and according to the Functional Plan Book.

The Functional Plan Book represent the quantity and the position for each decorative element.

Deviation from the decoration standard and the Functional Plan Book will be quoted accordingly, in therms of finishing, materials and quantity/position.

All the confirmed selections will be collected into the Decor Book.

The Book of Interiors, with plan and elevation, will be delivered as per information and as reference for the general looking of the interiors.

## 08.00.01 ACCOMMODATION PARTITIONS

**GUEST & OWNER:**

- LOWER DECK : Port Vip Cabin, Port Vip Bath, Port Twin Cabin, Port Twin Bath, STBD Vip Cabin, STBD Vip Bath, STBD Twin Cabin, STBD Twin Bath,Lobby
- MAIN DECK : Main Saloon, Main Foyer, Galley, Powder room, Owner's Study, Owner's Dressing, Owner's Cabin, Owner's Bathroom
- UPPER DECK : Sky Lounge, Lobby, Powder Room, Wheelhouse

**CREW :**

- LOWER DECK : Crew Mess, STBD Crew Cabin 01, STBD Crew Bath 01, Port Crew Cabin 01, Port Crew Bath 01, STBD Crew Cabin 02, STBD Crew Bath 02, Laundry ,Crew Corridor
- UPPER DECK : Captin's Cabin, Captain's Bath, pantry

## 08.10.01 CREW INTERIOR

### 08.11.02 CREW INTERIOR LININGS AND FURNITURE

The natural wood, solid and veneer, will be oak.. The finish will be satin. Lacquered wood will be as per reference RAL9010, satin finish.

Hull sides, superstructure sides and bulkheads will be lined with glued marine plywood panels, stiffened where required and with removable sections where necessary to access technical equipment or accessories (valves, electrical junction boxes etc.).

The Crew Quarters (Corridor and Cabins) will be lined in natural wood veneer. All the Crew Quarters furniture will be made of plywood finished in veneer with solid wood trim.

Crew Bathrooms, Crew Mess and Laundry will be lined by lacquered wood with solid wood boundary detail.

Crew Bathroom, Crew Mess and Laundry furniture will be finished with lacquered wood and solid wood trims.

Ceiling finishes will be with painted wood panels as per reference RAL 9010,Satin finishing.

Built in furniture will be made according to the General Arrangement.

Air conditioning grills will be flush with the furniture and removable for service.

## 08.11.03 CREW INTERIOR FLOOR LININGS

Floors in Crew Areas will be fitted according to the Functional Plan Book, as per Benetti selection:

- Crew Cabin => Synthetic Carpet
- Crew Bath => Wood
- Crew Mess, Corridor, Laundry => Vinyl Floor

**CREW AREA:**

| ROOM | TYPE | BRAND |
|---|---|---|
| CABIN | CARPET SYNTHETIC | BENETTI SELECTION |
| BATH | WOOD FLOOR | BENETTI SELECTION |
| CORRIDOR | VINYL FLOOR | BENETTI SELECTION |
| STAIRS | VINYL FLOOR | BENETTI SELECTION |
| LAUNDRY | VINYL FLOOR | BENETTI SELECTION |
| CREW MESS | VINYL FLOOR | BENETTI SELECTION |

## 08.11.04 CREW LOOSE FURNITURE

Loose furniture in crew areas will be fitted according with the Functional Plan Book as for Benetti selection.

**LOWER DECK**

**CREW MESS:**

| TYPE | QUANTITY | BRAND |
|---|---|---|
| STOOL | 2 | BENETTI SELECTION |

## 08.11.05 CREW INTERIOR HARDWARE

The following hardware will be provided for Crew Areas, as per Benetti selection:

- Furniture knobs,
- Door handles,
- Door stoppers.

Polished stainless steel pipe handrail will be fitted on Crew staircases.

Crew Area doors will be equipped with a twist lock from the inside and safety opening system from the outside.

# 08.20 GUESTS INTERIOR

## 08.20.00 GUESTS FURNISHING

**Guests interior linings and furniture**

Hull sides, superstructure sides and bulkheads will be lined with glued marine plywood panels, stiffened where required and with removable sections to access the technical equipment or accessories (valves, electrical junction boxes etc).

Wall linings and ceilings will be covered with fabric, leather, veneer or lacquered wood and according to the Interior's Concept Design.

Doors which are not fire doors will be made of double plywood sandwich panels. Doors will be painted, mirrored or veneered with solid mouldings according to the Interior's Concept Design.

Built-in furniture (cupboards, drawers, consoles, night tables, wash basin units, A/C units, desks, etc.) will be made according to the Interior's Concept Design and the General Arrangement. Furniture will be made of wood (timber or veneered marine plywood).

Interior stairways wall will be covered with veneered marine playwood.

Around portholes and windows curtain boxes will be fitted, made of lacquered or leather, as per Interior's style.

All selected wood samples (three copies, size 210 x 297 mm – A4 size) will be double signed both by the Owner and by Benetti.

Lining and furniture panels will have a balancing and sealing coat on the reverse side to avoid bending.

Air conditioning grills will be flush with the furniture and panels and removable for servicing according to the Interior's style.

Satin varnish or lacquer will be used according to the Interior's style Interior's Concept Design.

Special decorations selected together with the Benetti Interior's Decorator, will be quoted accordingly.

**Guests loose furniture**

Guest loose furniture (seats and tables) will be supplied and installed according to the Interior's Concept Design and the Functional Plan Book.

## MAIN DECK

### EXTERNAL AFT AREA:

| TYPE | QUANTITY | BRAND |
|---|---|---|
| COFFEE TABLE | 1 | BENETTI SELECTION |
| CHAIRS | 2 | BENETTI SELECTION |

### MAIN SALOON:

| TYPE | QUANTITY | BRAND |
|---|---|---|
| SOFA 2 SEAT | 1 | BENETTI SELECTION |
| SOFA 3 SEAT | 2 | BENETTI SELECTION |
| COFFEE TABLE | 2 | BENETTI SELECTION |
| DINING CHAIR | 10 | BENETTI SELECTION |
| DINING TABLE | 1 | BENETTI SELECTION |

### OWNER'S STUDY:

| TYPE | QUANTITY | BRAND |
|---|---|---|
| DESK CHAIR | 1 | BENETTI SELECTION |
| BUILTIN | 1 | BENETTI SELECTION |

### OWNER'S CABIN:

| TYPE | QUANTITY | BRAND |
|---|---|---|
| VANITY CHAIR | 1 | BENETTI SELECTION |
| CHAISE LOUNGE | 1 | BENETTI SELECTION |

## UPPER DECK

### EXTERNAL AFT AREA:

| TYPE | QUANTITY | BRAND |
|---|---|---|
| SOFA 3 SEAT | 2 | BENETTI SELECTION |
| COFFEE TABLE | 1 | BENETTI SELECTION |
| DINING TABLE | 1 | BENETTI SELECTION |
| DINING CHAIR | 10 | BENETTI SELECTION |

**SKY LOUNGE:**

| TYPE | QUANTITY | BRAND |
|---|---|---|
| ARMCHAIR | 2 | BENETTI SELECTION |
| COFFEE TABLE | 2 | BENETTI SELECTION |
| SOFA 3 SEAT | 2 | BENETTI SELECTION |

**EXTERNAL FWD:**

| TYPE | QUANTITY | BRAND |
|---|---|---|
| COFFEE TABLE | 1 | BENETTI SELECTION |
| CHAIRS | 4 | BENETTI SELECTION |

**WHEELHOUSE:**

| TYPE | QUANTITY | BRAND |
|---|---|---|
| BACKREST | 1 | BENETTI SELECTION |

## SUNDECK

**EXTERNAL:**

| TYPE | QUANTITY | BRAND |
|---|---|---|
| DINING CHAIR | 10 | BENETTI SELECTION |
| DINING TABLE | 1 | BENETTI SELECTION |
| SUNBED | 4 | BENETTI SELECTION |
| BAR STOOL | 3 | BENETTI SELECTION |

## Guests interior hardware

Guest Area doors will be equipped with a twist lock from the inside and safety opening system from the outside.

Doors stoppers will be provided to hold the doors in the open position.

All cupboard / storage / wardrobe / cabinet doors will be provided with closing devices. Full height cabinet doors will be provided with top, bottom and central hinges and locking pins. All cabinet doors will have fastening latches; touch latches where possible.

The following hardware will be detailed in according to the Interior's Concept Design:

- Furniture knobs,
- Anti-roll fiddles
- Hand rails,
- Door handles,

- Door stoppers.

Decorative polished stainless steel hand rails will be fitted on guest staircases.

**Guests cabinets outfitting**

Dedicated storage will be provided, with plexiglass supports for the following Owner's supplies:

Glasses - Plexiglas supports - one table service for n° 12 people (n° 36 pieces in total),

Dishes - Plexiglas supports - one table services for n° 12 people (n° 48 pieces in total),

Cutlery - drawers with partitions lined with velvet - one table services for n° 12 people (max. two drawers),

Bar (glasses, various liquors bottles) for n° 12 people (bar glasses n° 24 pieces).

Four months before the Vessel's delivery the Owner shall supply a list of supplies with a sample of each item to be stored so that proper plexiglass fittings can be made.

## 08.26.00 UPHOLSTERY, MARBLES, CARPET

**Guest interior floor linings**

Carpet, wood, marble, stone and vinyl floor will be chosen, supplied and installed according to the Interior's Concept Design and the Functional Plan Book.

**GUEST & OWNER:**

| ROOM | TYPE | BRAND |
|---|---|---|
| CABINS | CARPET | BENETTI SELECTION |
| BATHROOMS | MARBLE | BENETTI SELECTION |
| LOBBY | CARPET | BENETTI SELECTION |
| STAIRS | CARPET | BENETTI SELECTION |
| CORRIDORS | CARPET | BENETTI SELECTION |
| GALLEY | VINYL FLOOR | BENETTI SELECTION |
| BACKSTAIR | VINYL FLOOR | BENETTI SELECTION |
| **ROOM** | **TYPE** | **BRAND** |
| MAIN SALOON | CARPET | BENETTI SELECTION |
| MAIN FOYER | MARBLE | BENETTI SELECTION |
| DRESSING | CARPET | BENETTI SELECTION |
| OWNER STUDY | CARPET | BENETTI SELECTION |
| **ROOM** | **TYPE** | **BRAND** |
| SKY LOUNGE | CARPET | BENETTI SELECTION |
| WHEELHOUSE | TEAK&HOLY | BENETTI SELECTION |

## 08.26.01 INTERIOR UPHOLSTERY AND BLINDS

Fabric and leather will be chosen according with the Interior's Concept Design and the Functional Plan Book.

All windows and portlights, except Wheelhouse windows, will have curtains and/or blinds as per Functional Plan Book. The decorative curtains will be made of fabric and have horizontal or vertical folding. The blinds will be roller translucent shades. Wheelhouse windows will have a black mesh type shade, fixed on the outside.

Fabric for bed covers decorative cushions, headboard, curtains, sofa, chair, walls, ceiling etc.. will be chosen according to Interior's Concept Design.

One bedcover will be supplied for each bed.

One pillow and one decorative cushion will be supplied for each person.

One decorative pillow will be supplied for each sofa's seat.

## 08.26.02 EXTERNAL UPHOLSTERY

Sun bathing mattresses and external cushions will be covered with proper upholstery for external use.

## 08.26.03 MARBLES AND STONES

Marble floor, wall, and furniture tops will be fitted as shown as per Functional Plan Book. Marbles will be chosen according to to Interior's Concept Design.

Marbles and stones will be mounted on light support when installed on walls and floors, for a total thickness of 20 mm. For tops and other surfaces, where solid slabs will be used, maximum thickness of the slab will be 20 mm.

All selected marble samples (three copies, size 210 x 297 mm A4 size) will be double signed (one by the Owner, one by Benetti).

**GUEST&OWNER:**

| ROOM | TYPE | BRAND |
|---|---|---|
| GALLEY | WORK TOP + BACKSPLASH (H.MAX10cm) | BENETTI SELECTION |
| INTERNAL BAR | WORK TOP | BENETTI SELECTION |
| BATHROOM | FLOOR (CENTRAL - BORDER) | BENETTI SELECTION |
| BATHROOM | VANITY TOP + BACKSPLASH (H.MAX20cm) | BENETTI SELECTION |

**CREW AREA:**

| ROOM | TYPE | BRAND |
|---|---|---|
| CREW MESS | WORK TOP + BACKSPLASH (H.MAX10cm) | BENETTI SELECTION |
| BATHROOM | VANITY TOP + BACKSPLASH (H.MAX10cm) | BENETTI SELECTION |

### 08.26.04 CARPET

Carpet will be chosen according with the Interior's Concept Design and the Functional Plan.

All edges of carpet will be bound, where necessary, or fixed under the plinth in the dedicated recesses.

### 08.28.01 SANITARY EQUIPMENT

Wash basins, sinks and baths will be fitted in Guest's Are as per the Interior's Concept Design and the Functional Plan Book.

Shower doors for Guest and Owner's Bath will be of commercial type with proper locking system.

Crew Areas sanitary equipment will be fitted as per Benetti Selection, in according with the Functional Plan Book.

### 08.28.02 TAPS

Taps in the Guest's Areas will be fitted in Guest's Are as per the Interior's Concept Design and the Functional Plan Book.

Crew areas taps will will be fitted as per Benetti Selection, in according with the Functional Plan Book.

### 08.28.03 BATHROOM ACCESSORIES

The bath accessories fitted in the Guest's Areas will be chosen according to the Interior's Concept Design and the Functional Plan Book.

**GUEST&OWNER:**

| ROOM | TYPE | Q.TY | BRAND |
|---|---|---|---|
| BATHROOMS | SINK | 1 | BENETTI SELECTION |
| BATHROOMS | WASH BASIN FAUCET | 1 | BENETTI SELECTION |

| ROOM | TYPE | Q.TY | BRAND |
|---|---|---|---|
| BATHROOM WITH SHOWER | SHOWER MIXER | 1 | BENETTI SELECTION |
| BATHROOM WITH SHOWER | SHOWER DIVERTER | 1 | BENETTI SELECTION |
| BATHROOM WITH SHOWER | SHOWER HEAD | 1 | BENETTI SELECTION |
| BATHROOM WITH SHOWER | SHOWER HANDSET | 1 | BENETTI SELECTION |
| BATHROOM | SOAP HOLDER | 1 | BENETTI SELECTION |
| BATHROOM | GLASS HOLDER | 1 | BENETTI SELECTION |
| BATHROOM | TOWEL RAIL | 1 | BENETTI SELECTION |
| BATHROOM | TOILET BRUSH HOLDER | 1 | BENETTI SELECTION |
| BATHROOM | TOILET PAPER HOLDER | 1 | BENETTI SELECTION |
| BATHROOM | CLOTHES HOOK | 2 | BENETTI SELECTION |
| BATHROOM | TOILET GARBAGE BIN | 1 | BENETTI SELECTION |
| BATHROOM | SHOWER/BATH BASKET | 1 | BENETTI SELECTION |
| | | | |
| SKY LAUNGE | SINK | 1 | BENETTI SELECTION |
| SKY LAUNGE | FAUCET | 1 | BENETTI SELECTION |
| | | | |
| GALLEY/PANTRY | SINK | 1 | BENETTI SELECTION |
| GALLEY/PANTRY | FAUCET | 1 | BENETTI SELECTION |

## CREW AREA:

| ROOM | TYPE | Q.TY | BRAND |
|---|---|---|---|
| CREW MESS | SINK | 1 | BENETTI SELECTION |
| CREW MESS | FAUCET | 1 | BENETTI SELECTION |
| | | | |
| CREW BATH | SINK | 1 | BENETTI SELECTION |
| CREW BATH | FAUCET | 1 | BENETTI SELECTION |
| CREW BATH | SHOWER COLUMN SET | 1 | BENETTI SELECTION |
| CREW BATH | SOAP HOLDER | 1 | BENETTI SELECTION |
| CREW BATH | GLASS HOLDER | 1 | BENETTI SELECTION |
| CREW BATH | TOWEL RAIL | 1 | BENETTI SELECTION |
| CREW BATH | TOILET BRUSH HOLDER | 1 | BENETTI SELECTION |
| CREW BATH | TOILET PAPER HOLDER | 1 | BENETTI SELECTION |

| | | | |
|---|---|---|---|
| CREW BATH | CLOTHES HOOK | 2 | BENETTI SELECTION |

**EXTERNAL:**

| ROOM | TYPE | Q.TY | BRAND |
|---|---|---|---|
| BAR | SINK | 1 | BENETTI SELECTION |
| BAR | FAUCET | 1 | BENETTI SELECTION |

# 08.30 VARIOUS ACCESSORIES

## 08.32.0 MISCELLANEOUS

**GUEST & OWNER:**

| ROOM | TYPE | BRAND |
|---|---|---|
| ALL | DOOR HANDLE | BENETTI SELECTION |
| ALL | DOOR STOPPER | BENETTI SELECTION |
| ALL | FURNITURE KNOB | BENETTI SELECTION |
| ALL | ANTI-ROLL RODS | BENETTI SELECTION |
| ALL | HAND RAIL | BENETTI SELECTION |

| ROOM | TYPE | QUANTITY | SIZE | BRAND |
|---|---|---|---|---|
| MASTER CABIN | SAFE | 1 | 210X297 MM | BENETTI SELECTION |
| CAPTAIN CABIN | SAFE | 1 | 210X297 MM | BENETTI SELECTION |

**Decorative lamps**

Decorative lamps fitted in the Guest's Areas will be chosen according to the Interior's Concept Design and the Functional Plan Book.

**GUEST & OWNER:**

| ROOM | TYPE | Q.TY | BRAND |
|---|---|---|---|
| VIP CABIN STBD | WALL LAMP | 2 | BENETTI SELECTION |
| | | | |
| VIP CABIN PORT | WALL LAMP | 2 | BENETTI SELECTION |
| **ROOM** | **TYPE** | **Q.TY** | **BRAND** |
| TWIN CABIN STBD | WALL LAMP | 1 | BENETTI SELECTION |

| | | | |
|---|---|---|---|
| TWIN CABIN PORT | WALL LAMP | 1 | BENETTI SELECTION |
| | | | |
| MAIN SALOON | TABLE LAMP | 2 | BENETTI SELECTION |
| | | | |
| OWNER CABIN | WALL LAMP | 2 | BENETTI SELECTION |
| | | | |
| SKY LOUNGE | TABLE LAMP | 2 | BENETTI SELECTION |
| | | | |
| CAPTAIN CABIN | READING LAMP | 1 | BENETTI SELECTION |
| | | | |
| WHEELHOUSE | CHART LAMP | 1 | BENETTI SELECTION |

**CREW AREA:**

| ROOM | TYPE | QUANTITY | BRAND |
|---|---|---|---|
| CREW CABIN | READING LAMP | 6 | BENETTI SELECTION |

Special request will be quoted accordingly.

### 08.34.01 MATTRESSES

Owner's, Guest and Captain mattresses will be of the spring type, custom made, with padding.

The Crew 's mattresses will be of rubber foam marine quality, custom made.

There will be some clearance between the mattress and the bedframes.

## 08.40 DOMESTIC APPLIANCES

### 08.41.00 APPLIANCES

Domestic equipment fitted on board will be chosen according to the Functional Plan Book.

## CREW:

| ROOM | TYPE | Q.TY | BRAND |
|---|---|---|---|
| LAUNDRY | WASHER MACHINE | 1 | BENETTI SELECTION |
| LAUNDRY | DRYER MACHINE | 1 | BENETTI SELECTION |
| CREW MESS | FRIDGE FREEZER | 1 | BENETTI SELECTION |
| CREW MESS | MICROWAGE | 1 | BENETTI SELECTION |

## GUEST & OWNER:

| ROOM | TYPE | Q.TY | BRAND |
|---|---|---|---|
| GALLEY | COOKING TOP | 1 | BENETTI SELECTION |
| GALLEY | EXHAUST HOOD | 1 | BENETTI SELECTION |
| GALLEY | OVEN | 1 | BENETTI SELECTION |
| GALLEY | DISHWASHER | 1 | BENETTI SELECTION |
| GALLEY | GARBAGE MACERATOR | 1 | BENETTI SELECTION |
| GALLEY | FREEZER | 1 | BENETTI SELECTION |
| GALLEY | FRIDGE | 2 | BENETTI SELECTION |
| GALLEY | TRASH COMPACTOR | 1 | BENETTI SELECTION |
| PANTRY | WINE CELLAR UNDER TOP TYPE | 1 | BENETTI SELECTION |
| PANTRY | MICROWAVE | 1 | BENETTI SELECTION |
| | | | |
| OWNER STUDY | MINIFRIDGE | 1 | BENETTI SELECTION |
| | | | |
| SKY LOUNGE BAR | ICE MAKER | 1 | BENETTI SELECTION |
| SKY LOUNGE BAR | MINIFRIDGE | 1 | BENETTI SELECTION |

## EXTERNAL:

| ROOM | TYPE | Q.TY | BRAND |
|---|---|---|---|
| BAR | ICE MAKER | 1 | BENETTI SELECTION |
| BAR | MINIFRIDGE | 1 | BENETTI SELECTION |

## 08.50.00 SPECIAL DECORATION

The builder will design and execute all the interior furniture and decor according the material selection and typical details indicated in the specification.

Any request of change and or modification to the interior furniture and decor of what proposed and not expressly mentioned in the specification and related interior documents such as high gloss interior varnishing, special wood lacquering, metallic lacquering, metal decorative inlays, wood marqueteries and inlays, special woods decorations, gold leaves, silver leaves, marbles inlays, mosaics, custom made decorative items, custom made hardware ecc... will be evaluated and quoted accordingly.

# 10 MISCELLANEOUS

# 10.00 MISCELLANEOUS

## 10.01.01 OWNER'S SUPPLY

Owner's supplies up to 4 t have been considered for weight calculation within this Specification. These are typically to include but not limited to:

- tender, including the lifting points, with maximum length of 5.05 m.
- PWC, including the lifting points.

  The effective tender and PWC models to be located in the garage may be confirmed only when they will be defined from the Owner.
- watersports equipment.
- diving bottles with scuba accessories and swimming equipments.
- gym and fitness equipment.
- artworks and paintings, antiques, decorative items, frames, ashtrays.
- books and games.
- cassettes, compact discs, video discs.
- bone china, crokery, glasswork, trays, silverware.
- table accessories, table linens.
- cutlery, serving pieces, loose cooking equipment and utensils, bottles.
- pots, pans and cooking tools.
- bedlinens and blankets.
- towels and robes.
- rugs.
- uniforms and stationery
- charts, pilots, almanacs, chart table equipment, etc.
- nautical books and publications (in case of optional MCA compliance, the ones requested by them will be provided by Benetti).
- personal computers and accessory equipment.
- tools, workshop equipment.
- torches and small items.
- cleaning equipment and products.
- spare parts.