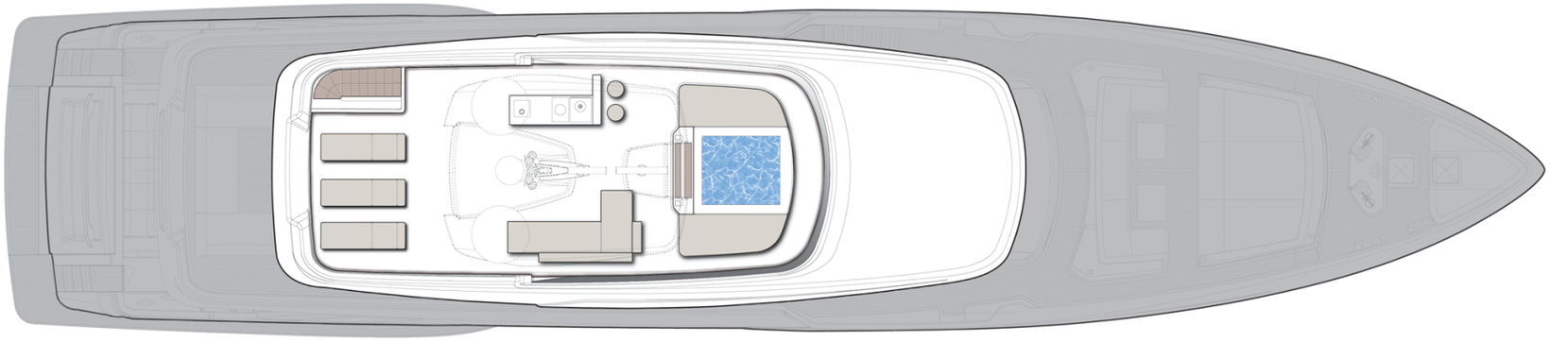
Navetta 37

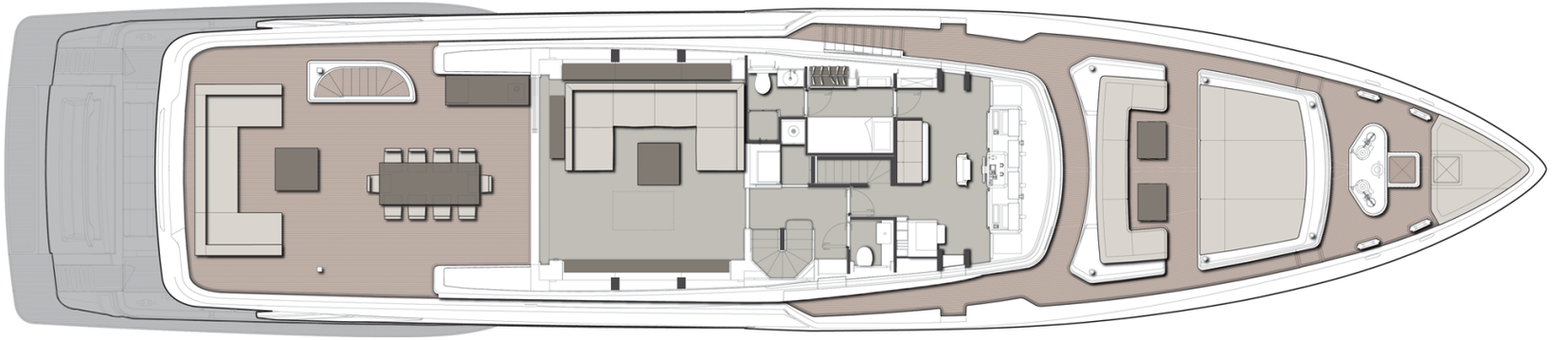
Technical Specifications

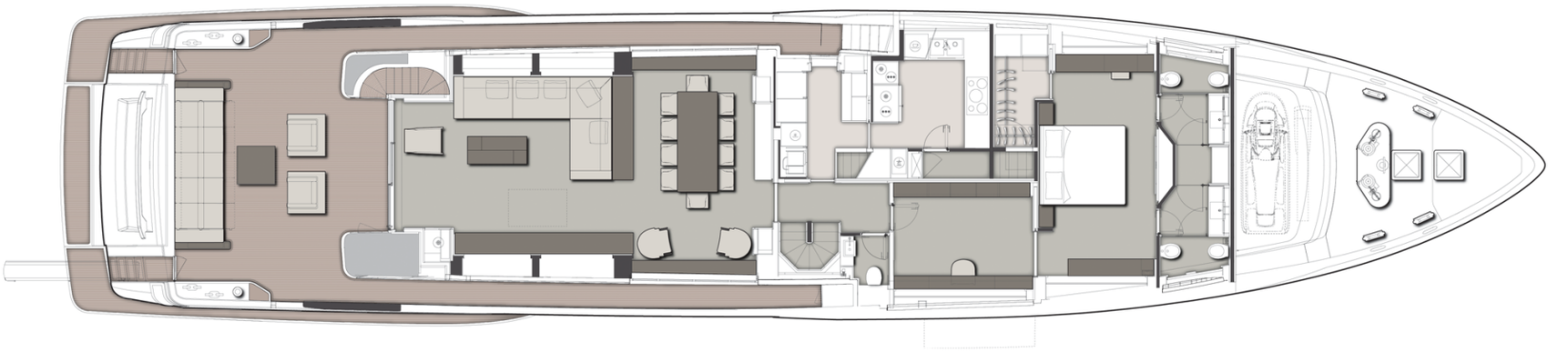
2020 - 2021

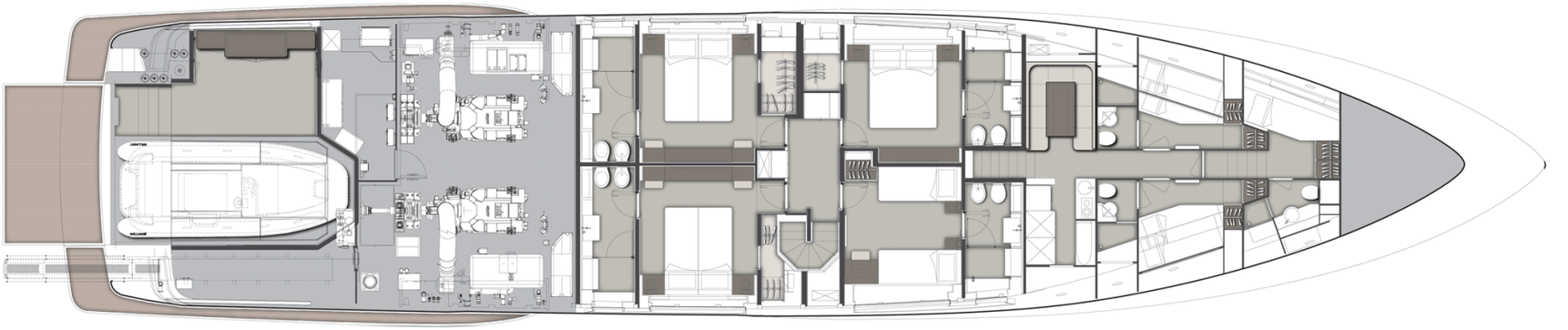
CUSTOM LINE

General Arrangement









CUSTOM LINE

Custom Line Navetta 37

Standard Technical Specification

Release 01 - 06.2021

For further information please visit www.customline-yacht.com

Index

1. GENERAL

1.1 GENERAL INFORMATION

This Technical Specifications and enclosed General Arrangement Plan describe main technical features of standard version of Custom Line Navetta 37.
The technical design will be developed by Ferrettigroup (hereinafter called the Builder).
Navetta 37 is a semi-displacement luxury motor yacht with hull and superstructure made of composite material, twin screw propellers and two diesel engines. The Yacht has been specifically designed for recreational purposes. The configuration of this Yacht is a three deck arrangement plus sun deck. The present Technical Specifications, named Specifications hereinafter, is referred to the standard General Arrangement Plan in force at the date of the present document.
The design and construction will be in accordance with the following specifications that describe the standard Yacht version, the General Arrangement Plan and the Ship-building Contract (hereinafter called Contract). The Yacht will be designed and built in accordance with RINA (hereinafter called "Classification Society") Rules for the Classification of Pleasure Yachts.
Any Buyer request for upgrading/modification to the Specifications and to the General Arrangement Plan, will be studied (in feasibility, time, performance and weight impacts), evaluated and quoted accordingly if feasible. The Builder reserves the right to refuse any requests for modification that may affect the minimum technical and/or safety requirements and/or the good name of the Builder. In the event that the machinery or equipment described in this Technical Specifications cannot be supplied by the Builder for reasons beyond its control, the Builder has the right to substitute these components with equivalent products, after having informed the Buyer.
In case of technical discrepancies between specifications and contract, the Contract will prevail. In case of technical discrepancies between specifications and General Arrangement Plan, the specifications will prevail. The use of «on» in the specifications means that alternatives are possible and means «at the Builder discretion».
The shipyard reserves the right to modify the present specifications, should this be considered necessary or advisable, in the interest of obtaining overall improvement of the Motor Yacht. The Owner will be informed by the Builder about these changes.
The warranty is in conformity to the contractual terms.

1.2 PARTIES

The Builder:
Custom Line Yachts brand of Ferretti Group SpA

Technical & Naval Project:
Ferretti Group Engineering Department

Exterior and layout project Design:
Zuccon International Project

Interior Design:
Ferretti Group Project Architect & Engineering Dept. Interior Design

1.3 MAIN CHARACTERISTICS AND PERFORMANCE

Length overall (ISO 8666)	37,04 m	121 ft. 6 in. ft.
Waterline Length (full load)	30,66 m	100 ft. 7 in. ft.
Beam max	8,00 m	26 ft. 3 in. ft.
Max Draft (to propeller or to the lowest point including the appendages at even keel)	2,27 m	7 ft. 5 in. ft.
LightShip	185 t	407855 lbs.
Half Load Displacement (1)	203,8 t	449201 lbs
Full Load Displacement (2)	225 t	496040 lbs.
Gross tonnage (ITC 1969)	289 GT	
Fuel tank capacity	32500 l	8586 US Gals.
Fresh water capacity	4000 l	1057 US Gals.
Grey water capacity	1500 l	396 US Gals.
Black water capacity	1500 l	396 Us Gals.
Maximum speed	15,5 knots	
Cruise speed	12 knots	
Range at cruise speed (3)	2000 n.m.	
Range at 10kn	3000 n.m.	
Accommodation for Owner & Guests	5	
Accommodation for Crew	4	

1.3.1 NOTES

Sea trials at trial displacement (Half load condition) shall be performed with a clean hull, sea state no more than 2 of Douglas Scale and wind force no more than Beaufort 2, deep sea, external air maximum temperature 25°C and sea water maximum temperature 20°C.

(1) Half load condition: standard equipment installed (no tender, no jet skis, no pwc, no luggage, no optionals, no owner's supply…), fuel, fresh, grey and black water respectively at 50% of maximum value, empty pools, provisions at 50%, 20 persons.

(2) Full load condition: standard equipment installed (no tender, no jet skis, no pwc, no optionals, no owner's supply…), fuel and fresh water respectively at 100% of maximum value, empty grey and black water tanks, empty pools, provisions at 100%, 20 persons.

(3) Stabilizing fins activation shall be left to the discretion of the Builder.

1.4 NOISE AND VIBRATIONS

1.4.1 GENERAL NOISE AND VIBRATION

The Builder has performed dedicated studies for the comfort of the yacht in the conditions specified below.

1.4.2 NOISE DATA

Typical reference values are as follows:

CUSTOM LINE - NAVETTA 37 Standard				
The data indicated in table B.1 and B.2 are reffered to main engines: **2 x MAN V12 LE446 - Power 1400 mhp**			**Table B.1**	**Table B.2**
			Sailing Engines @ 1800 RPM	**Anchor**
Location	**Deck**	**Note**	**Leq [db(A)]**	**Leq [dB(A)]**
Aft Vip Cabins	LD		57	46
Fore Guest Cabins	LD		54	44
Crew Dinette	LD		54	46
Crew Cabins	LD		54	44
Aft Ext. Area	MD		79	59
MD Saloon	MD	Living Area	62	48
MD Saloon	MD	Dining Area	58	46
Galley	MD		56	49
Owner's cabin	MD		50	40
Aft Ext. Area	UD		75	56
Upper Salon	UD		52	43
Captain's Cabin	UD		50	44
Wheelhouse	UD		54	52
Middle Ext. Area	SD		72	54

For above B.1 and B.2 table measured noise levels, a + 2 dB(A) measurement tolerance will be accepted. The measurement operating mode shall be performed according to the standard ISO 2923.

1.4.3 VIBRATION DATA

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

- Owner and guests interior luxury areas (excluding aft VIP bathrooms): 1,5
- Open deck relaxing areas: 2
- Crew area: 2

A + 0.5mm/s RMS measurement tolerance will be accepted on the all measured vibration levels. The vibration levels must be analyzed in FFT with spectral analysis in constant bandwidth not greater then 0.25 Hz and Hanning window type. Vibration levels shall be measured in the center of the specified area.

1.4.4 GENERAL TEST CONDITION

The following general test conditions shall be respected for the above noise and vibration measurements:

- MMPP @ 1800 RPM (sailing condition)
- Engine room fans operating at about 50% speed
- Fan Coils operating at minimum speed (sailing and anchor)
- Air Treatment Units operating (sailing and anchor)
- Fins stabilizer system operating (sailing and anchor)
- Galley extraction fan and hood extraction fan will be off (sailing and anchor)
- Bow thruster not operating (sailing and anchor)
- Hi-fi, TV, Radio, galley appliances and laundry machines shall be off
- Electronic noise in the wheelhouse shall not be dominating the target noise levels stated for the space
- All Owner's and guests accommodation and public spaces as well as crew cabins shall completely fitted; doors shall be closed
- Half load displacement condition for sea trial
- Wind not exceeding Beaufort scale 1, with wave height <0.2m
- Yacht evenly trimmed (fore and aft) and at athwart ships
- Clean hull
- Water depth greater than 50m
- Sun deck pool empty

In the event that a rope cutting device is installed as option upstream the propellers, the above target noise and vibration levels will be increased.

1.5 YACHT'S GENERAL DESCRIPTION

The Yacht will have 4 decks, in accordance with the General Arrangement Plan (Hereinafter called "GA"):

Deck	Name	Main Spaces and features provided	Accomodation Areas Net Heights (mm)
4	Sun deck	Sunbathing area, lounge, bar area and jacuzzi pool	2090
3	Upper Deck	Aft cockpit with relax area, dining area, saloon, pantry, lobby, day toilet, Captain's cabin, Wheelhouse, forward relax area	2050
2	Main Deck	Aft cockpit with lounge area, main saloon and dining, galley, lobby, day toilet, pantry, Owner suite, fore garage and mooring area	2050
1	Lower Deck	Beach club, garage with floodable basin, engine room, guest cabins, crew cabins and crew mess, laundry and storage spaces	2060

The following sleeping accommodation will be provided according to the GA:

	Owner and Guests		
N°	Suite/cabin	Capacity	Total Capacity
1	Owner	2	2
4	Guest	2	8

	Crew and Staff		
N°	Cabin	Capacity	Total Capacity
1	Captain Cabin	1	1
2	Twin crew cabin	2	4
1	Single crew cabin	1	1

Total number of persons on board for which Life Saving Appliances (LSA) will be provided is: 20 persons.

1.6 BUYER'S SUPPLY

Buyer's supplies means the items to be provided by the Buyer and to be installed by the Builder, in accordance with the provisions of the Contract.

1.7 INSULATION

1.7.1 INSULATION GENERAL

The Builder has designed dedicated solution to insulate the yacht for comfort and fire protection, investing in technology and materials. For more details see Chapter 3.

1.7.2 SOUND PROOFING

Floating floors - plywood panels or equivalent will be fitted on a structural metallic frame fixed onto the main deck and lower deck. Elastic material will be fitted between panels and frame structure. Yacht insulation will be carried out taking into account comfort requirements and will be installed on board according to insulation plans and details developed by the Builder. Ceiling, sides and bulkheads will be treated with sound proofing materials where required in order to achieve target confort performance. The damping material will be applied according to related plan.

1.7.3 FIRE PROTECTION

Structural fire protection of bulkheads and decks will be provided where requested by Regulatory Bodies.

1.8 MODIFICATIONS

Every request for a modification from the Buyer to the contents of this Technical Specifications or those of the Contract, will have, depending on the requested modification, a financial, time, performance or weight consequence.
The Builder reserves the right to refuse any requests for modification that may affect the minimum technical and/or safety requirements and/or the good name of the Builder.
Integration and modifications will only be executed after an agreement in the form of a signed Change Order between the Builder and the Buyer has been reached.
In the event that the machinery or equipment described in this Technical Specifications cannot be supplied by the Builder for reasons beyond its control, the Builder has the right to substitute these components with equivalent products, after written approval of the Buyer.
If the required modifications generate remarks by the Regulatory Bodies and/or affect the delivering schedule the Builder reserves the right to reject them.

1.9 MAKERS' LIST

Equipment, machinery and outfitting will be selected by the Builder preferably as per the following list:

Item	Maker
Bow Thruster	ABT
Capstans, winches and windlasses	LALIZAS or QUICK or ITALWINCH
Domestic appliances	BOSCH
Elastic coupling	VULKAN
Engine room fans	GALLINEA or GIANNESCHI
Main engines	MAN
External doors	TECNOINOX, NEMO or equivalent
Galley	ERNESTO MEDA
Gangway	AMARE
Gear Boxes	ZF
Gensets	KOHLER or ZENORO
General purpose electric pumps	GIANNESCHI or CALPEDA or GARBARINO
HVAC system	CONDARIA
Navigation lights	LOPOLIGHT or ACQUASIGNAL
Propellers	ROLLA or VEEM
Shaft lines seal	FLUITEN
Stabilizer Fins	NAIAD or ABT TRAC
Steering System	TWIN DISC
Water maker	IDROMAR
Watertight doors	NEMO or CALISTRI

2. CLASSIFICATION AND CERTIFICATES

2.1 STANDARD CERTIFICATION

The Yacht described in the Specifications, including its machinery, equipment and systems will be built in compliance with:
RINA rules for Classification of Pleasure yachts, for classification:
C ✠HULL ● MACH Y, Unrestricted Navigation.

The vessel shall be designed and constructed according to the specification and with a safety equipment package as per relevant paragraph. Any modification due to the Flag Buyer's choice shall be evaluated as per Par 1.1.

2.2 OPTIONAL CERTIFICATION

The Yacht can be built and classed at owner's choice and cost (opt) in compliance with RINA Rules for the classification of yachts designed for commercial use and REG Yacht Code. The notation will be:
C ✠HULL, ● MACH, Y Ch, Short Range Navigation, Compliance REG Y Code Part A.

Design approval and surveying will be carried out by RINA and Maritime & Coastguard Agency (MCA).

2.3 CERTIFICATES

A comprehensive List of Certificates/Statements/Test Reports/Declarations shall be delivered and forwarded in due course.
All certificates will be in the English language. The following clean (no remarks) certificates will be delivered with the Yacht. (Short term certificates with full term certificates to follow within 6 months after delivery)

- International Tonnage Certificate
- Certificate of Class for Hull and Machinery, or interim Certificate
- International Air Pollution Prevention Certificate for each engine over 130kw
- NOx/SOx technical files for each engine >130kw (engine manufacturer)
- TBT Declaration by the builder
- Equipment test certificates (where required by Regulatory Bodies)

In the event that the above mentioned certificates are not available on the delivery date, the Builder will provide provisional certificates which can be used temporarily by the Yacht until the arrival of the final certificates.

3. HULL AND STRUCTURE

3.1 HULL GENERAL

Hull form is designed on the basis of experience on previous similar Yachts, taking into account resistance, seakeeping and manoeuvrability characteristics.
The structural design and assessment will be according to the most recent experience acquired by the Builder in design and construction of GRP for this type of Yacht and according to the RINA Classification Society Rules.
The stern garage watertight compartment will be located on lower deck, between the beach area and the engine room. The watertight collision bulkhead will be positioned in accordance with the Classification Rules. A chain locker space suitable to contain both port and starboard chain cables will be provided forward the watertight collision bulkhead.

3.2 HULL & DECK MATERIALS AND CONSTRUCTION

The Yacht will be constructed with a combination of foam (closed-cell) core sandwich and single skin fiberglass construction using mat, unidirectional, biaxial and woven E-glass as shown on the structural drawings approved by the Classification Rules.
The hull structure shall be framed with longitudinal main bottom main deck girders transversal web frames and bulkheads. The hull and the deck will be built in glass-fiber reinforced plastic (GRP); both will be made by hand lay-up. For the lamination of structural parts, hull, deck and reinforcements, an isophthalic resin will be employed. Hull osmosis phenomenon will be prevented by applying iso-neopentylic gelcoat. A further barrier to hydrolysis of the GRP laminate will be obtained by using a vinylester resin for the execution of the skin coat (first lamination layers after the gelcoat). The hull side and main deck will be built, mainly, in sandwich-type GRP consisting of PVC foam core and inner and outer skins.
The hull will have GRP tanks for fuel oil, black waters, grey waters, fresh water, integrated into the hull structure. Each structural tank will have at least one manhole. The tanks will be joined to structural elements with Classification Society approved GRP lamination. Tank internal surfaces will be treated in order to avoid that the liquid stowed in the tank penetrates the GRP material:

- Fuel tank with 2 layer of glass C
- Fresh water tank with food grade gelcoat
- Sewage tank with food grade gelcoat or 2 layers of glass fiber

Structural bulkheads will be made of sandwich-type GRP, with a PVC foam core, and composite marine wood panels. GRP bulwark will be provided and will be integrated into the hull sides. The bulwark will be equipped with fairleads, access doors and freeing ports, in compliance with the Classification Rules. A GRP bow thruster tunnel will be provided and fixed to the hull by means of an adequate lamination. All penetrations of piping and electric cables through watertight bulkheads will be watertight.

3.3 STRUCTURAL REINFORCEMENT, PLATES AND INSERTS

Special consideration will be paid to local reinforcements such as and in way of:

- fore and aft ends
- main machinery foundations
- shaft brackets
- rudders trunks
- stabilizers machinery
- bow-thruster tunnel
- windlasses
- bollards
- anchor hawses
- tender and water toys launching and haulage system
- shell door kinematics
- cranes or heavy lifting machineries foundations

Aluminum, brass, composite materials or equivalent inserts will be fitted to distribute concentrated stress due to the fastening of heavy machinery and parts to the hull structure (eg. hand rails, pillars,…). Hawse piping will be made by GRP laminate. Installations will be in compliance with the Classification Rules, where applicable.

3.4 HULL SHELL DOORS

The Yacht will be equipped with the DMT (Dual Transom Mode) system, a patent by Ferrettigroup. The transom door will be able to open in two alternative modes:

- by turning down (Beach Area mode) thus creating a large bathing platform with natural teak laid
- by turning up (Float-in Garage mode) thus allowing the launch/haul of the tender or toys

Both the movements are associated with the lowering of the central portion of the aft platform.
The whole kinematics will be electro/hydraulically operated.
On the forward garage an hinged shell door will be installed opening upward and electrohydraulically actuated.
The design and installation will be in compliance with the Classification Rules.

3.5 MACHINERY AND EQUIPMENT FOUNDATIONS

Proper plywood (fully laminated with GRP) profile and plates, or aluminum profiles, to the Builder discretion, will be provided to support each machinery, equipment and switchboard in the engine room and control room. Aluminum structural frames dedicated to the gensets will be provided.

3.6 SUPERSTRUCTURE MATERIALS AND CONSTRUCTION

The superstructure will be built, mainly, with decks having a cored sandwich structure and sides made by using glass composite skins as per structural drawings to be designed in compliance with the Classification Rules. Local reinforcements will be fitted,

where necessary, to support concentrated loads due to pillars, or primary vertical reinforcements or heavy parts. The connection between first superstructure and the main deck and between second superstructure and first superstructure will be made mainly by means of fasteners.

3.7 HARD TOP

The hardtop will be made in GRP, supported by two lateral wings made in composite structure, and by pillars at the forward and aft ends. The following will be installed on the hartop:

- TV Sat Antenna
- Empty dome
- Painted mast in welded aluminum alloy structure with radars, lightning conductor, navigation lights, and sensors
- Navigation and communication equipment

3.8 PAINTING AND FINISHING

Any visible structure from outboard of the Yacht will be faired and painted to the standard finish of the top-side hull.
Deck lockers and technical spaces and void spaces not insulated will be painted with a light colour suitable protective coating.
All preparation of surfaces and application of coating materials shall be made in accordance with product manufacturer's recommendations instructions and in the specification datasheets.
All surface preparation and application work to be carried out in accordance with relevant and applicable local and international safety standards.

3.8.1 EXTERNAL PAINTING

The Yacht will be delivered with a marine coating finishing according to the Builder Quality Control procedures for polished gelcoat parts. The finishing will be white gelcoat except beauty line and other parts in accordance to Colour Plan. The yacht external surfaces will be finished according the different zones; each zone will be characterized by its own quality levels and checks. In general the acceptance criteria will involve fairness, cracks, gloss, orange peel. All the products used for the painting will be approved by FerrettiLab. Antiskid areas will be in accordance with the related plan. Antifouling paint will be applied to the underwater portion of the hull.

3.8.2 INTERNAL PAINTING AND FINISHING

White Gelcoat with paraffin will be applied on bilge areas, chain locker room and lockers in the superstructures at Builder discretion. Whilst painting is being carried out, the area of the yacht shall be clear of non essential workmen, free of rubbish and other contamination. Prior to the application the surfaces shall be efficiently cleaned of oil,

rust, and shall be in a thoroughly dry condition. Lighting fixtures, plumbing fixtures, deck coverings, glass, hardware and trim etc. shall not be painted. Earth connection points shall not to painted. Piping shall not be painted. For tanks treatment see related paragraph.

3.9 INSULATION

The hull plating, decks, hull and superstructure's bulkheads will be insulated by means of rock wool and glass wool or equivalent and other special materials in accordance with related plans. The external layer will be of aluminum foil or high density synthetic woven.
Structural subdivisions between areas will extend beyond the finished ceiling level to the ships structure to provide acoustic privacy and structural supports. Cableways, ducting and pipe systems passing through vertical divisions will be sealed with mineral insulation and silver foil tape or equivalent.
All the heat insulation systems will be done in parallel with fire (where required) and noise insulation.
The engine room insulation will be carried out according to the requirements of the Regulatory Bodies and will be finished with a sound absorbing material. The insulation will be kept above the bilge so that it cannot become water logged or oil impregnated. Particular care will be taken to particulars in order to avoid deck noise and to maintain the specified noise level values.
Where necessary, technical areas will be insulated according to Builder's standards to obtain the required fire protection rates and sound levels stated in the relevant paragraph of this Technical Specifications where applicable.

3.9.1 AFT AND FORWARD GARAGES

Aft garage will have gelcoat finish except for the ceiling where wood panels will be installed.
Forward garage walls and ceilings will not be insulated and will have gelcoat finish.

3.9.2 BOW THRUSTER SPACE

The bow thruster space will be with gelcoat finish. Walls and ceiling will be painted and insulated where necessary.

3.9.3 MISCELLANEOUS TECHNICAL SPACES AND LOCKERS

Lockers and technical spaces will be arranged according to the availability on the GA and depending on the technical requirements. These will principally be used for ventilation machineries, the fire-fighting system, electrical components, systems machinery or for the stowage of equipment.
Lockers and technical spaces, fitted in internal areas, will have doors forming part of the adjacent wall.
Aft peaks will be covered by white DiBond panels or equivalent at Builder's discretion, as far as practicable due to the hull shape and where not in contrast with the piping and duct laying or the outfitting.

Particular care will be made in order to avoid water becoming stagnant.
Where necessary depending on dimensions and use, adequate illumination, natural ventilation and drainage will be provided.

3.9.4 ENGINE ROOM

The engine room walls will be covered with aluminium plate and ceiling with DiBond or similar metal sheeting. The ceiling panelling will be a smooth white finish (DiBond or similar) panels which will be easy to clean and will present a hard abrasion resistant surface inside the machinery spaces. Polished stainless steel handrails will be fitted along the central walkway of the engine room for safety reasons. Handrails will be dismountable. The floor will be made in knurled aluminium and supported by aluminum profiles frame.

3.9.5 ENGINE CONTROL ROOM

The control room will be located aft of the engine room. The room will be well lit, and fitted with air conditioning as per relevant Paragraph of this Technical Specifications. The floor will be made in knurled aluminium and supported by aluminum profiles frame. The control room will be covered by white DiBond panels or equivalent at Builder's discretion, as far as practicable due to the hull shape and where not in contrast with the piping and duct laying or the outfitting.

3.10 CATHODIC PROTECTION

Dedicated anodes will be provided for hull, shafts, propellers, rudders and thrusters as applicable.

3.11 FREEBOARD & DRAFT MARKS

No draft marks will be installed. Whether the yacht shall be registered for commercial use (optional), stainless steel draft marks /strips will be fitted on to the port and starboard hull side shell at bow and stern together with Plimsoll and freeboard deck marks as per Regulatory Body requirements.

3.12 HULL GRIDS

The main sea intakes will be equipped with bolted grids.

3.13 BRIDGE WINGS

Two (2) bridge wings, one port and one starboard, will be integrated in the external bulwark structure at the wheelhouse level, covered by a hinged panel to cover the instruments.

4. MAIN MACHINERY

4.1 TRANSMISSION

The drive train is in line with one stand-alone thrust bearing and elastic coupling mounted between shaft and reduction gearbox. The main engine will be directly coupled with the gearbox (free standing installation); the propulsion assembly (main engine and gear box) will be elastically supported on resilient mounts.

4.2 MAIN ENGINES

Two four stroke diesel engines suitable for marine propulsion will be installed on the foundations in the engine room, one each side:

Manufacturer	MAN
Model	V12 LE446
Rated power	1400 mhp / 1029 kW (each) @ 2300 RPM

Operation profile will be up to 1000 hours per year at a maximum of 20% of time at full load, average load <50%. Exhaust emissions are in compliance with EPA TIER III regulations.
Colour will be white with RAL according to Maker's standard.

4.3 GEAR BOXES

A reduction gear box ZF 3050 will be provided for each engine. Reduction ratio determined on relation to the propeller design and propulsion set is 3.28:1. Colour will be white with RAL according to Maker's standard.

4.4 SHAFT LINES, BEARINGS AND SEALS

Sea water lubricated bearings will be provided for each propulsion shaft line. Shaft material will be made of Aquamet17 or equivalent; diameter and design will be according to the Classification Rules.
Mechanical seals will be mounted inside the hull, they will be cooled by the seawater system; a pneumatic gasket will be fitted as optional.
On the propeller side the shafts will be supported by custom designed single support, constructed in bronze alloy and designed according to the Classification Rules. The support will be completed by a bossing in heavy thickness tube. A hydro-lubricated rubber bearing will be mounted with Chockfast or equivalent resin inside the bossing.

4.5 PROPELLERS

Two skewed propellers, 6 blades, diameter about 1.3m, designed to obtain high efficiency and low noise will be provided.
They will be made by nickel- aluminium-bronze (NiBrAl).
Each propeller will be statically and dynamically balanced.
Manufacturing tolerances will be according to ISO 484/2 CLASS S.

4.6 RUDDERS

Two spade rudders with drive by wire steering control will be provided. The blade size will be determined to ensure good manoeuvring capabilities; the rudder will be properly transversally off-set from shaft line axis in order to remove the screw shaft without dismounting the blade. The rudders construction material will be AISI 316L. Rudder holes will be in stainless steel, rudder stock will be made of Marinox 17 or equivalent, welded to the rudder blade and sized according to the Classification Rules.

4.7 STEERING

The steering system will be of electrohydraulic type. A drive by wire steering wheel will be fitted in the wheelhouse, while one joystick will be installed on each side wing. On the dashboard a control panel will show the main info (mode, alarm status, rudder angle) of the steering system. The hydraulic system will be made of two power packs (oil reservoir with a 24Vdc pump) and 2 hydraulic cylinders (one for each rudder). One auxiliary hydraulic pump will be installed in the control room in order to feed the hydraulic actuators in case of electronic control system fault. Connections will be through dedicated hydraulic lines and sets of hand operated valves.

4.8 BOW THRUSTER

A bow thruster unit hydraulically driven (85hp) will be installed in a dedicated space. The propeller will have fixed blades and will be fitted in a 20in tunnel. The installation will be executed strictly according to Manufacturer instructions and specifications. Grids on bow thruster tunnel will not be provided in order to maximize the thrust performance. Grids, made in stainless steel, can be designed and quoted as optional.
Control Joystick will be installed on the main helm station in wheelhouse and on the wing control stations.

4.9 STABILIZER FINS

Two electro hydraulic stabilizer fins working underway and at zero speed will be installed. The fin area will be about 1.5sqm. An electric Power Unit of 15kW will be provided for zero speed function at anchor. The fins control will be integrated in the main dashboard with additional control panel for backup in wheel house.

4.10 TRIM TABS

Two units, one for each side, will be installed on the transom edge actuated by servo units connected with control units. The system will be governed by a control panel placed in the wheelhouse.

4.11 ELECTRIC POWER GENSETS

Two diesel generators with the following characteristics will be installed in engine room:

Manufacturer	ZENORO
Rated power outputs:	55kW
Rated voltage / frequency and phases:	400Vac / 50Hz – 3 phase
RPM	1500
Insulation class:	H

Each diesel genset will be provided with automatic shut-down for the following alarms:

- low oil pressure
- high water temperature
- overspeed

Each diesel geneset will be equipped with:

- sound-proof enclosure and white paint RAL according to the Maker's standard
- resilient support system
- built-in freshwater circulating and cooling system with heat exchanger
- oil cooler
- electronic speed regulators
- control panel installed outside the soundbox equipped with:
  - starting/stop push buttons
  - volts, amps and hour meters

Diesel gensets will be provided with isolated grounding. Exhaust gas system will be wet type, with a gas water separator and outlet installed on the hull side shell at waterline level; pipes to gas/water separator and between gas/water separator and outboard will be ISO 13363 corrugated rubber hoses. The gensets installation will be done strictly according to Manufacturer instructions and specifications.

5. SHIP SYSTEMS

5.1 GENERAL SHIP SYSTEMS

Ship systems will be designed, supplied and installed by the Builder as per the Builder standard in accordance with Classification Rules.
Bulkhead penetrations will be carried out in accordance with provision of the Regulatory Bodies.
Piping connections will be basically defined on each paragraph dedicated to the single system; different connection methods will be used but anyhow in compliance with the Classification Rules.
Drip trays in plastic will be installed under the followings machineries: chiller water pumps, chiller cooling sea water pumps, bilge pump, fire pump, fuel transfer pump. Additional drip trays can be provided as optional.
Valves selection will be proper for the physical properties of the piping system such as pressure, temperature and fluid viscosity. Valves will be manually operated if not otherwise stated. Quick closing valves will be locally and remotely controlled from the emergency control position.

5.2 BILGE AND FIRE FIGHTING SYSTEM

Each watertight compartment will have a separate bilge suction, with foot valve, connected through the main bilge manifold to the bilge pump.
Water from the bilge will be discharged overboard through an overboard connection located in the engine room. Main engines cooling pumps can be used to draw water from the engine room bilge in case of emergency.
A second bilge suction will be installed where required, with foot valve, connected through the emergency bilge manifold, to the emergency bilge/fire pump and discharging overboard through a three way valve. The emergency bilge manifold will be installed out of the engine room.
The chain locker will be self draining, additionally one bilge suction connected to a dedicated hand pump will be provided. A bilge alarm system, connected to the alarm and monitoring system, will be installed in all compartments served by the bilge system. The bilge pumps can be started and stopped from the control panel.
Bilge lines will be flexible hoses fire resistance (ISO 7840) inside machinery spaces while fire resistant (ISO-13363) hoses outside machinery spaces; the manifolds will be made in AISI 316 stainless steel.

5.2.1 FIRE FIGHTING SYSTEM

The fire figthing system will have its own pump placed in engine room, and will be connected to the bilge system through the main manifold in such a way that the bilge and fire-figthing pumps may serve as bilge pumps and vice-versa. The emergency bilge/fire manifold placed out of the engine room will allow to use the diesel motor pump for feeding the fire fighting system too, by suctioning from a dedicated sea chest.
Fire hydrant valves, with fire hoses and nozzles will be fitted, in

- n°1 on upper deck area
- n°3 on main deck

- n°3 on lower deck

They will be equipped with fire hoses of not longer than 20m. The nozzles will have a diameter of 12mm and will be of dual-purpose type (i.e. spray/jet type).
The aft garage will be protected by a spray water system made of 3 nozzles connected to the fire fighting system through a manual valve. As optional, the fore garage will be protected by a spray water system connected to the main fire line by a manually operated valve.
Two branches connected to the hawse pipes through one electro-valve will be made for washing the cables chains; the activation will be local. One branch connected to the fire fitghing system through a electro-valve will allow the washing of the grey and black water tanks.
Fire fighting lines will be made by fire resistant hoses complying with ISO 15540-15541 in machinery spaces and ISO 7840 outside.

5.2.2 BILGE PUMP

One electric self-priming centrifugal pump 400Vac/50Hz 3ph 4kW will be installed in the engine room for main bilge system. The pump can be by-passed with the electric fire pump.

5.2.3 FIRE FIGHTING PUMP

One electric self-priming centrifugal pump 400Vac/50Hz 3ph 4kW will be installed in the engine room for feeding the fire extinguishing system. The pump can be by-passed with the electric bilge pump.

5.2.4 EMERGENCY DIESEL MOTOR PUMP

One diesel motor pump will be installed, in the port side of beach area technical space, for servicing the bilge and fire system.

5.3 FUEL OIL SYSTEM

Two structural fuel oil tanks on bottom hull and two free standing steel daily tanks in the engine room will be fitted as per tanks capacity plan. The lines will allow to transfer the fuel oil from the main tanks to service tanks by two e/pumps. The valves will be manually operated.
Feeding and return lines will connect the users through a stainless steel manifold located in engine room to the service tanks and storage tanks, through quick release connection valves. Two filling stations will be located on main deck sides, one port and one starboard, and will be able to deliver the fuel to storage tanks. The filling will be made by gravity only, the valves will be manually operated. Tank vents will be connect to an overflow manifold located in the hull bottom and fitted with a level alarm.
Pipes will be flexible hoses fire resistant complying with ISO 7840 outside machinery space and ISO 15540-15541 inside. Connections to main engines and generating sets will be made with flexible pipes with oil resistant synthetic rubber.

5.3.1 FUEL OIL TRANSFER PUMP

The fuel oil transfer system shall allow to transfer from storage tanks to the service tanks by means of n°1 electric self-priming pump supplied by 380V/50Hz/3ph and n°1 electric pump supplied by 24Vdc. Both pumps will be placed in the engine room while the controls will be on the main electrical panel in engine control room and monitored in the main dashboard in wheelhouse.

5.3.2 FUEL OIL FILTERS

Racor filters will be installed for main engines and diesel generators. Drip trays will be provided as optional. A fuel oil purifier, manually operated, can be installed as optional.

5.4 FRESH WATER SYSTEM

One fresh water tank will be fitted on the hull bottom in the forward area as per tanks capacity plan. Cold and hot water lines will be provided to feed the various users. The hot water will be produced by two 220V/50Hz electric boilers of 100 litres of 1.5kW heating capacity each and distributed onboard through a close circuit line; a circulating pump will be installed in order to keep the constant temperature.
The following wash down connections, integrated into the fresh water system, will be provided:

- n°3 (two at sides, one in the stern staircase) on main deck
- n°1 on upper deck forward
- n°1 on sun deck
- n°1 in aft garage

Water supply will be provided for the wipers mounted in the wheelhouse.
Hot water pipes will be insulated. Filling lines will be provided on the aft main deck on both side. Piping material will be mainly plastic.

5.4.1 FRESH WATER MAKER

One (1) single type reverse osmosis desalination plant will be installed. Total capacity will be 180l/h, with feed water temperature of 25 °C. The water maker production will be delivered directly into the tank, the unit will be placed in the aft technical spaces, pre-mounted on a frame and completed by pre-filters, fresh water flushing and local control panel.

5.4.2 FRESH WATER PUMP

One water pressure system made by two electrical pumps supplied by 400Vac/50HZ/3ph will be installed in engine room.

5.5 SEWAGE SYSTEM

One black and one grey water structural tanks will be fitted according to tanks capacity plan; each system will have dedicated piping. Two transfer self-priming pumps, one for each system, will suck from two manifolds and will allow for discharging through two separated overboard connections. One Marpol discharge flange will be placed on the stern. The manifolds will be connected with a normally closed valve in order to act in case of fault of one transfer pump.
WC will be connected to the fresh water system for flushing; waters will be delivered to the tank by their own pump. Three way valves will be fitted in order to discharge directly overboard when allowed by the International regulations as applicable. These valves will be labelled and their use will be under captain's responsibility.
Grey water system will be designed to have sinks, baths and showers draining by gravity through conventional collection tanks equipped with automatic pump and connected to the tank. Washing machines and dishwashers will discharge directly in the gray water tank. Galley users will discharge directly into the tank by gravity. A three-way valve, properly labelled, will be installed in an accessible location for outboard discharge.
Piping will be made by flexible and hardwall rubber hoses with metal helix for black water system and grey water transfer. Grey water connectiions will be made by food quality steel helic PVC hose. Connections will ensure a smooth inner pipe surface without steps or hindrances to the flow. All piping will be installed according to the system manufacturer recommendations.

5.5.1 BLACK AND GREY WATER PUMPS

One black and one grey water electrical pumps 400Vac/50Hz/3ph will be installed in the engine room or aft technical spaces.

5.6 FIRE EXTINGUISHING SYSTEM

5.6.1 ENGINE ROOM EXTINGUISHING SYSTEM

A fixed gas fire fighting system (FM200 or equivalent, to the Builder choice) will be installed out of the engine room. A sound and visual alarm will be provided in the engine room operating automatically when fire alarm is activated.

5.6.2 AFT GARAGE EXTINGUISHING SYSTEM

The aft garage will be equipped with a fire fighting sprinkler system fed by sea water (see fire fighting system).

5.7 COMPRESSED AIR SYSTEM

One electric driven compressor unit having a power requirement of about 1,5kW will be installed in the engine room; air will be delivered at a maximum pressure of 7 bar, together with a reservoir of approximately 24 litres. Drip tray will be installed as optional. The system will supply compressed air to the horn and through a pressure reducing valve to the connection in engine room.

5.8 SCUPPERS AND DRAINAGE SYSTEM

Scuppers and drainage system will be provided to collect and discharge outboard the wash down and rain waters from external decks. They will be equipped with removable grids in stainless steel. Above freeboard deck, pipes will be made of PVC and flexible hoses. Below freeboard deck scupper lines will be in ISO 13363 flexible rubber hoses.
The aft garage will be drained through one automatic 24Vdc pump connected overboard. A second 24Vdc self priming pump sucting from a stainless steel collecting tank (fitted with vent and level switch safe for petrol) will allow to discharge overboard or to the Marpol flange by acting on a three way manual valve.

5.9 SEA WATER COOLING SYSTEM

Sea water will be used for cooling both the main engines, the gearboxes and the exhaust gases; there will be two independent systems, one for each side. One manual three way valve mounted on each propulsion cooling system will allow to supply sea water to the opposite gearbox with one main engine running.
Shaft seals will be provided by an independent cooling piping system, one on each side; a second cooling line will be provided by a branch connected to the gearbox outlet.
Piping will be ISO 15540-15541 corrugated rubber hoses for main engines, gearboxes, shaft seals, and bow thruster cooling system, while ISO 13363 corrugated rubber hoses will be used for main engine gas cooling system. Connections to the engines will be flexible and in accordance with the manufacturer installation instructions.
Generators sea water piping will be ISO 13363 corrugated rubber hoses; each unit will be fed by its own circuit.
Sea chests will be in bronze and installed with the related sea chest strainers; in the engine room there will be:

- n.2 sea chests for main engines
- n.2 sea chests for diesel generators
- n.1 sea chest for fire pump
- n.1 sea chest for air conditioning system
- n.1 sea chest for bow thruster hydraulic oil cooling system
- n.2 sea chests for the shaft seals

Two electric pumps, arranged in parallel, will supply sea water to the heat exchanger for cooling the bow thruster hydraulic oil.

5.10 AIR VENT LINES

All structural tanks will be provided with adequate air vent line.
Fuel oil tanks vents will be connected to a single line, then led overboard through a goose neck placed above main deck. Material will be the same used for the system.
Fresh water vent line will be led to the hull overboard connection through a goose neck

to be placed above main deck. Material will be the same used for the system.
Black and grey water vent lines will be led overboard through a goose neck to be placed above main deck. Material will the same used for the system. No-smell filters will be provided for black and grey water vents.
Hull connections will be made by the installation of a manually operated valve.

5.11 HYDRAULIC SYSTEM

The systems will consist of the power packs feeding the following systems, where installed:

- steering gear,
- tramsom shell door and lift,
- gangway,
- stabilizers fins,
- forward garage shell door.

Each hydraulic power unit will be designed on the basis of the highest demanding user; no simultaneous operation of the user will be possible without affecting the performance.
Carbon steel pipes connected by high pressure fittings will be used for the steering system; flexible hoses will be installed on the end connections. The piping of other systems (non essential services) will be made by flexible hoses.

5.12 MAIN ENGINES GAS EXHAUST SYSTEM

The exhaust gas of each engine will be led mainly underwater and above waterline level through a GRP pipe installed into each sponson. Metallic compensators will be provided at the engines gas outlets; from there the gas will be ducted to the silencer unit installed over the main engine and then it will be cooled down by sea water and then brought overboard.
The silencer will be installed on a white painted steel frame while a polished stainless steel pillar will be provided to support the gas exhaust ducts. The equipment will be resiliently mounted in order to minimise noise and vibration. Elastic resilients will be of the low frequency type and protected against the high temperatures in order to avoid any rubber modification which would lessen the resilient damping properties.
The duct will be made of stainless steel AISI 304 for the dry part and in AISI 316L stainless steel for the wet part. Sea water pipes will be made by ISO 13363 flexible hoses.

5.13 VARIOUS

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. 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 insulated clamps.

6. AIR CONDITIONING AND VENTILATION SYSTEM

6.1 GENERAL DESCRIPTION

The vessel will be designed and built in such a way as to guarantee comfort in weather conditions as descripted in the table below and according to the 'Mediterranean' system configuration. Interior living spaces such as cabins, saloons, wheelhouse will be served by the air conditioning system. The yacht ventilation system will be based on the following principles:

- living spaces and wheelhouse will be supplied with air conditioning
- galley, laundry and bathrooms will be provided with mechanical air extraction
- the stern garage will be mechanically ventilated by two extractor units and by natural inlet
- the engine room will be mechanically ventilated

Air conditioning and heating will be through fan coil units.
The systems will be designed on the basis of the following parameters:

SUMMER			
Outside air	35°C	95°F	R.H. 80%
Inside air	23°C	74°F	R.H. 55%
Sea water temperature	32°C	90°F	

WINTER		
Outside air	5°C	41°F
Inside air	21°C	70°F
Sea water temperature	5°C	41°F

6.1.1 ACCOMODATION AIR CONDITIONING AND VENTILATION

HVAC (Heating Ventilation and Air Conditioning) system will be basically made by one chiller unit with related sea water and chilled water pumps, fan coil units and piping/ducting system. Technical specifications of the machinery are summarised in the following paragraphs.

6.1.2 MAIN CHILLER UNIT

The main chiller unit consists of sub-units for a total capacity of 240.000 BTU/h. Hot water will be produced by heat pump system.

6.1.3 FAN COILS

Accommodations will be provided with local fan coil units equipped with thermostat, fan, heat exchanger, dust filter and drip-tray. Fan coils will be fed by lines from main chiller unit. Each fan coil unit shall be provided with a ten speed controller and a display panel for temperature and fan speed settings.

6.1.4 CHILLER SEA WATER PUMPS

Two sea water cooling system electrical pumps, centrifugal type with bronze case, 400V/50Hz/3ph power supplied will be installed. Each unit will be sized to cover the whole chiller unit capacity (the second pump will be for back up).

6.1.5 CHILLER WATER PUMPS

Two chilled water circulation electrical pumps, centrifugal type with cast iron case, 400V/50Hz/3ph power supplied will be installed. Each pump will be sized to cover the whole chiller unit capacity (the second unit will be for back up).

6.1.6 FANS AND EXTRACTORS

The extraction for the cabins will be achived through the bathrooms; one electrical blower will be installed in proximity of each room. Extractors will be provided for the laundry, galley, day-heads, stern garage. Dedicated extractors will be positioned under the internal integrated dashboard. Blowers will be installed on soft mountings in order to provide noise reduction.

6.1.7 AIR TREATMENT UNITS

Where the A/C system is in its standard version (Mediterranean) no air treatment units will be provided.

6.1.8 AIR CONDITIONING PIPING

Piping for air conditioning chilled/heated water will be made in plastic and multilayer material. All pipes will be insulated.

6.2 ENGINE ROOM VENTILATION SYSTEM

6.2.1 ENGINE ROOM FANS

The air intake will be through two side openings, one installed on each side, fitted with water mist separators. Two axial flow fans will be installed for the extraction, they will be driven by a 400V/50Hz/3ph electrical motor through inverter units and they will be reversable. Two control panels, one on each side, will be provided in the engine control room.

6.2.2 ENGINE ROOM FIRE DAMPERS

Two fire dampers will be fitted in order to close the engine room ventilation intake and two units will be installed to close the outlets. They will be electrically activated. The emergency closing devices activation system for ventilation will be installed outside the machinery.

6.2.3 TECHNICAL SPACE VENTILATION

In general technical spaces and storages (where considered necessary by the Builder) will be ventilated through mechanical extraction and natural supply in order to ensure adequate air exchange of each space and to avoid overheating and condensation. Engine control room will be equipped with a fan coil as standard. When converter units will be installed (optional) an indipendent refrigeration unit, with its own sea chest, will be provided in lieu of the standard fan coil. As optional the chain locker ventilation will be through an air extractor installed inside the space.

7. OUTFITTINGS

7.1 ANCHOR AND MOORING EQUIPMENT

Two High Holding Power type anchors in galvanised steel will be fitted in stainless steel anchor pockets. Each unit will weigh about 180kg and will be connected to the hull through a chain 14mm in diameter made in galvanized steel, with stud link and having a length of 125m each (5 lenghts). The system will be sized according to the Classification rules.

7.1.1 MOORING BOLLARDS AND FAIRLEADS

7.1.1.1 MOORING BOLLARDS

Polished stainless steel AISI 316L bollards will be fitted as follows:

- n. 4 on the forward manoeuvring area mounted onto the deck (2 for each side)
- n. 4 on the aft raised mooring areas in the main deck cockpit (2 for each side)
- n. 4 horn type integrated in the fairleads, fitted on the main deck side bulwark (2 for each side)
- n. 2 on the aft platform (1 for each side)

7.1.1.2 FAIRLEADS

Polished stainless steel AISI 316L fairleads will be fitted in the main deck bulwark as follows:

- n. 4 on the forward manoeuvring area (2 for each side)
- n. 4 with integrated bollard, fitted on the side bulwark (2 for each side)
- n. 2 on the aft raised mooring areas in the main deck cockpit (1 for each side)

7.1.2 WINDLASSES

Two electrical windlasses vertical type (4kW, 400Vac/3ph) will be fitted on the fore-deck, bolted to the deck and locally controlled by means of a hand wired controller. Each windlass will be equipped by a stainless steel gypsy, one stainless steel drum and mounted close to a wheel type chains stopper, a devils claw and a chain roller mounted on top of each hawse pipe. A polished stainless steel plate will be fitted below the windlasses to protect the gelcoat and facilitate the removal of dirt. The system will fulfill the requirements of the Classification rules.

7.1.3 CAPSTANS

Two foot switch electric operated vertical capstans (2,5kW, 400Vac - 3ph) will be fitted on the raised mooring area built on each side of the main deck cockpit. Each unit will be provided by dual rotation at single speed.

7.1.4 FENDERS AND WHIPS

The following equipment will be supplied:

- 8 cylindrical + 6 spherical fenders with covers completed with 3m of rope
- two boat hooks
- one set (opt) of mooring whips (2 units) for the tender

7.1.5 MOORING ROPES

A total of 210m diam 26mm of blue mooring lines will be supplied.

7.2 GANGWAY

A retractable electro-hydraulic gangway with polished stainless steel frame, planks teak laid and manually removable handrails on both sides will be fitted on the aft starboard side of the yacht. The walking width of the smallest part will be about 500mm and the reach from aft end of the hull will be minimum 2000mm. Vertical angle will be +15deg up and -10deg down. The walkway will be provided by courtesy lights. Safety working load of such gangway will be 150kg. The control panel will be installed close to cockpit entrance with buttons of man present type. An IR receiver will be fitted for two portable remote control.

7.3 SWIMMING LADDER

A portable polished stainless steel foldable swimming ladder, with teak steps, will be supplied. It will be manually installed by using two sockets fitted in the aft platform by means of polished stainless steel flanges.

7.4 BEACH AREA

A relaxing beach area shall be fitted at stern, with walls wood finishing, furniture, teak floor and led lights.
The transom door will open turning down by an hydraulic system and create a large bathing platform with natural teak laid.
A watertight door will be fitted to separate the beach area and garage from the engine room.
Two technical spaces will be fitted on the both sides of the beach area.

7.5 STERN GARAGE AND TENDER

A watertight semi-flooding garage will be fitted for accommodating one tender (Owner's supply) equipped with diesel propulsion system having a power lower than 375kW.
A watertight electro-hydraulic actuated DMT shell door will be fitted at stern. It will be made in GRP and will open in two modes, upward (Float-in Garage mode) and downward (Beach Area mode). On the whole the use of the shell doors will be limited to calm sea and sheltered waters. The status of the shell doors will be monitored through

the central monitoring system. The operation of the DMT door will be by means of a local control panel.
A hydraulic winch will be installed to haul out and launch the tender on the rollers fixed on the garage floor.
Lights fed by 230Vac and emergency 24Vdc power supply will be installed on the ceiling.
A watertight hinged door will be fitted to separate the garage from adjacent compartments as per Regulatory bodies requirements.
Allowable tender dimensions and weights shall be check by the Builder, on the whole they are:

- Max length 5700mm
- Max beam 2350mm
- Max height 1200mm
- Max weight 1200kg
- Draft (fully loaded) 350-500mm

7.6 FORWARD STORAGE

A storage with hydraulic hatch, will be fitted at bow under the forward deck sunpad.
As option that space can be used to store a small dinghy or a jet-ski, installing an hydraulic crane with 500kg max load.
Available storage dimensions shall be check by the Builder, on the whole they are:

- Max length 3300 mm
- Max beam 1200 mm
- Max height 1200 mm
- Max weight 420 kg

7.7 WINDOWS AND PORTHOLES

7.7.1 GLASS WINDOWS

The type and thickness of the glazed panels will be in compliance with Regulatory Bodies requirements. Windows shall be of Grey Europe colour (except for the wheelhouse) and will be fitted on the hull and superstructures as per GA and exterior design.
Portholes will be integrated in glass windows in lower deck.

7.7.2 PORTHOLES

Polished stainless steel portholes with Grey Europe glass will be installed in the lower deck crew area as per GA and exterior design, they will be of non-openable type and have a round shape. They will be designed, installed and tested according to the requirements of the Classification Rules. Further round hinged portholes installed on windows will be provided according to GA.

7.8 WATERTIGHT DOORS

Hinged type watertight doors with sensor for monitoring their status shall be fitted in the following areas:

- One between engine control room and engine room
- One between garage and engine control room
- One between garage and port technical space
- One between engine room and starboard technical space

7.9 BULWARK DOORS AND AFT GATES

Two gates will be fitted aft, at main deck level, on the stairs leading to the bathing platform. They will be hinged type, with a polished stainless steel frame. Two bulwark doors (one on each side) will be installed, they will have concealed hinges and stainless steel threshold and locks.

7.10 EXTERIOR DOORS AND HATCHES

Weather tight doors with sensor for monitoring their status shall be fitted in the following areas:

- Main deck salon to main cockpit: aft glazing door, sliding and hinged type, with polished stainless steel frame, made in 3 parts, electrically operated
- Main deck dining area (starboard side): glazing sliding type door with polished stainless steel frame made in 4 parts (2 fixed), manually operated (electrically as optional)
- Main deck galley (port side): GRP panthograph door, manually operated
- Wheelhouse: GRP side manual pantograph doors with glazed opening with electric lock/unlock system (2 units: one for each side)
- Upper deck lobby (port side): GRP panthograph door, manually operated
- Upper salon to panoramic cockpit: aft glazing door, sliding and hinged type, with polished stainless steel frame, made in 3 parts, manually operated (eletrically as optional)
- Engine control room external access: GRP manual pantograph door with glazed opening

Weathertight hatches flush type with sensor for monitoring their status will be fitted, on the deck in the following areas:

- Emergency escape from owner's cabin
- Emergency escape from bow portside crew cabin
- Emergency escape from engine room.

7.11 HANDRAILS, CAPRAILS, PILLARS AND EXTERNAL NON STRUCTURAL STAIRS

Polished stainless steel AISI 316L handrails, hollow rectangular section 60mm x 20mm and 40mm x 20mm according to the Builder standard, will be provided:

- Upper deck fore area
- Upper and Sun deck aft areas
- Handrails specifically designed by the shipyard and the designer will be fitted:
  - on the aft stairs from main deck to upper deck,
  - on the aft stairs from upper deck to sun deck,

The hand rails will be designed according to the classification rules.

A teak caprail will be fitted on top of the main deck bulwark, all around, mounted on a stainless steel hand rail, where not laid directly on structural bulwarks, according to Builder standard, where planned as per standard General Arrangement Plan (ref. standard décor plan). Section will be about 150x40mm.
The non structural stairs will have a stailess steel or composite (at shipyard choice) supporting frame and steps covered by teak planks.
Polished stainless steel pillars will be fitted in the following position:

- n. 2 between the main deck cockpit and the first superstructure
- n. 2 between the upper deck cockpit and the second superstructure
- n. 2 on the sun deck for supporting the hard top

7.12 SIDE EMBARKATION LADDER

A side embarkation ladder will be provided as OPTIONAL, made in white painted Aluminum alloy with stanchions on both sides with rope handrail. Stainless steel reinforcement and sockets will be fitted at the base of side gates.

7.13 WIND SCREEN PROTECTION

Glazed panels Grey Europe coloured and fixed on polished stainless steel stanchions, will be bolted onto the sun deck front bulwark to create a wind screen protection.

7.14 MINI POOL

A Jacuzzi 4 setas mini pool having a capacity of max1390l, with spa system for temperature control and maintenance, will be fitted on the sun deck area, integrated in a GRP furniture, with sunpad cushions, polished stainless steel hand rail and teak steps. A whirlpool system will be provided together with one 4,7kW heater. An emergency discharge system will allow to empty the pool within 3 minutes (drain on the deck from where it goes overboard).

7.15 TEAK DECK LINING

According to the Builder standard, the main and upper external decks will be planked with natural teak and black caulking as standard, including deck hatches.
Bathing platform, side sponsons and transom door, will be planked with natural teak and and black caulking.
As option, the sun deck and the forward triangle, can be planked with natural teak and black caulking.
As per the Builder standard the planks size will be 12mm thick by a width of 60mm and max length of 3000mm. The teak planks will be glued directly on the decks using vacuum system lay. Before the installation and gluing, all the decks will be treated and levelled – if necessary - in accordance with the Builder standards and the recommendations of the supplier of the coat of glue.

7.16 SAFETY EQUIPMENT

The Yacht will be delivered with life saving and fire appliances, as per Italian Bodies Requirements.
The yacht will be equipped with the following life saving appliances:

- Housed life buoys (2), one with rope and 30 mt light buoy
- 2 Life rafts for 10 people each (total 20 people)
- 20 Life jackets
- 2 Child life jackets
- 1 First aid medical kit
- 1 SART Transponder
- 1 EPIRB

The yacht will be equipped with the following firefighting appliances:

- foam extinguishers
- powder extinguishers
- CO2 extinguishers
- fire blanket

7.17 TENDER CRADLES

One set of plastic rollers for the Tender will be provided and installed inside the stern garage. They will be mounted on stainless steel frames bolted to the bottom plate.

7.18 SIDE TRACKWAYS

Working tracks will be installed above windows on full beam sections of the superstructure to allow windows cleaning by the crew using a harness and bosun's chair. Two sliders (cars) and end stops will be supplied and installed to each rail. Rails and cars (and installation) will be according to the Regulatory Bodies requirements.

7.19 FLAGPOLE

A stainless steel flag pole will be provided on the aft bulwark on the upper deck.

7.20 SUN AWNINGS

There will be one (1) awning system above the sun deck aft cockpit; the system includes:

- Two portable carbon fibre pole with flush mounted connection on deck;
- Awning of about 10m^2 (Sumbrella fabric or equivalent)
- Fixed connection at rollbar level.

Manual tensioning devices for awnings are concealed inside the poles.

7.21 YACHT'S NAME

The Yacht's name in polished stainless steel letters (with backlight as optional) as per Buyer's design will be installed on the transom. As optional it will be mounted on port and starboard side. The homeport in polished stainless steel will be installed on the transom.
One shipyard logo in polished stainless steel will be installed on each side of the deckhouse at main deck level.

7.22 WINDOW WIPERS

The front wheelhouse windows will be equipped with three windscreen wipers. These will have both intermittent and variable speed control. Cold water cleaning jets will be included.

7.23 EXTERIOR SHOWERS

One shower handset, selected by the Shipyard, will be provided with wandering connection on the stern swimming platform.

8. ELECTRIC SYSTEM

8.1 GENERAL

A modern and complete marine electrical system will be supplied and installed. Special attention to be paid to the design and components used in order to prevent problems with harmonic distortions, low insulation and EMC. As far as practicable and possible, all electrical equipment will be installed so that it will be easily accessible for maintenance. The electrical systems will consist of:

- generators system
- distribution system
- lighting system
- alarm system

The following voltages will be used:

- 400V, 50Hz three phase for power.
- 230V, 50Hz single phase for lighting purposes, small users and households.
- 24Vdc for services and emergency lights, safety circuits and for the navigation instruments.

Power will be supplied by:

- main generator system
- emergency power
- shore connection
- batteries
- UPS for all data communications and essential bridge services

The electrical equipment, wiring, fixtures, boards, switches etc. will be designed, installed and tested according to the Classification Rules requirements. All cables shall comply with Classification Society requirements and IEC 60092-507. Cables within the hull will be installed on galvanised steel, painted Aluminum alloy or flame retardant PVC trays and secured with metal and plastic clips according to the Builder installation instructions. Secondary routes will be made in PVC flame retardant. Cables wires colors will be determined by the Builder and set for neutral, positive and negative wires. Penetrations of watertight bulkheads will be made through watertight multi-cable glands or equivalent approved sealing systems.

8.2 CABLING

Routing of cabling will be designed so that interference between systems is minimized to a level in accordance to the EC Directive. In all accommodation and technical spaces 230V sockets will be installed.

8.3 POWER DISTRIBUTION

The system will be designed to ensure that load is evenly distributed over the three phases.
The ac power sources will be connected to the main switchboard installed in the control room, automatic thermal magnetic circuit breaker will be installed, they will be remotely controlled too. For every power source back-lit push buttons will be provided to show to on-line/off-line status together with lamps for indication line voltage. An emergency stop button for each generator will be provided on the main switchbord too. 400 and 230Vac bus bars will divided into two sections, each section will feed half of the users. A bus tie will split the two bus bar systems, will be manually operated and will allow to connect one or two generators to the distribution system. Dedicated automatic protection devices will prevent mistake in the electrical sources management operations. The grounding system will be a separate neutral conductor (TN-S type). The distribution system will be fitted with a low insulation indicator device providing alarm signal locally and to the monitoring system.
A reverse power protection system for each generator will be provided.

8.3.1 POWER SOURCES PARALLELLING SYSTEM

A synchronising and load sharing system between the generators will be provided. A local-remote switch will allow to manually connect the generators in parallel to manage it automatically. The system will manage the power requests from the yacht electrical users and will be controlled through the central monitoring system. Gradual exclusion of non-preferential appliances will also be provided in the event of an overload. This system generally known as SLS (Selective Load Shedding) will allow to decrease the power request as the system approaches maximum capacity or a certain limit (% of rated power) set by the operator and before overloading the generators or shore system. This condition will be shown on the monitoring system and allow the engineering staff to bring a second generator on line. The systems departing from the boards will be protected by switches.

8.4 SHORE CONNECTION

As a standard supply one 3 phase isolation transformer 70kVA, 400Vac input, 400/230Vac with neutral output will be installed. One 100A socket with about 20m cable will be provided. One (1) Electric devices for handling the portable power cable will be provided at stern. A frequency converter system made by two units (master and slave) can be installed as optional, with the following characteristics:

Power: 2x36kVA
Input voltage: 170-520VAC 3phase
Output voltage: 400VAC 3phase + neutral
Input frequency: 40-75Hz
Output frequency: 50Hz
Cooling: Air cooled
Connections: n°1 cable, with a 100A socket with length about 20m

The converter 'on line' and 'off line' operations will be executed only from the converter unit front panel.

8.5 MAIN SWITCHBOARD

The main switchboard will be constructed (IP22) in steel or painted aluminium and will be installed in the engine control room. The front side will have an isolated handrail natural ventilation grids and openable hinged panels. Proper labels will describe each gauge or switch. Bus bars will be of hard drawn copper, proper sized section and insulated. All the lines coming from the switchboard will pass through manually operated circuit breakers having short circuit and over current trips. The switchboard will be divided as follows:

- 400/230Vac Generators and shore line control panel
- 24Vdc power supply section
- Section for the various systems start switches

The generators panel will include the following main elements:

- One multimeter for each generator
- Volt gauges, amperage gauges
- Earthing control
- Mayer (SLS) system
- Signal lamps

The 24Vdc switchboard section will accommodate the magnetothermic switches for dc electrical system users and the monitoring system display.
The switchboard will be designed, built and tested according to the requirements of the Classification Rules.

8.6 EMERGENCY SWITCHBOARD

The emergency switchboard will be installed as near as is practicable to the emergency source of electrical power. It will be fed by emergency battery system. The 24Vdc battery bank will be equipped by a manual battery switch-off and a dedicated battery charger, and sized according to the electrical balance in emergency conditions and according to the Regulatory Bodies requirements.

8.7 DISTRIBUTION SWITCHBOARDS

The distribution boards will be distributed along the Yacht according to the electrical system design. They will be constructed in metal or composites. They will be fed by the principal board by lines equipped with manually operated circuit breakers. The lines may be either 400Vac or 230Vac, dependant on the services using them. The lines in

departure will be protected by manually operated circuit breakers. For every distribution board one spare line for each voltage will be provided. As far as possible and practical the distribution-boards will be installed in positions hidden from view. A 24Vdc distribution for service users and for emergency will be installed. A 24Vdc distribution-board will be installed in the ECR panel and in the wheelhouse.

8.8 BATTERIES

The following groups of batteries will be installed:

- Two groups 24Vdc (one per unit) for the start of the main engines; fed by a battery charger
- Two groups 12Vdc (one per unit) for the start of the diesel generators; fed by a battery charger
- One group for the 24Vdc emergency supply; fed by a battery charger
- One group 24Vdc for the radio station; fed by a battery charger
- One group for the 24Vdc users (services); fed by a battery charger

Sealed gel batteries will be used mainly. The capacity of the batteries will be sufficient to comply with the requirements of the Regulatory Bodies and to the Technical Specification of the engine/ motor manufacturers.
The start batteries will be recharged by the alternators installed on the related engine and a dedicated battery charger.
The start batteries for the main engines and the diesel generators can be swapped in case of emergency.
The status of all batteries will be shown on the central monitoring system.

8.9 ELECTRICAL MOTORS AND STARTERS

Each motor starter will have an insulation switch and lights to indicate run and stop condition.

8.10 DEGREES OF PROTECTION

The degree of protection of the enclosures of the Electrical equipment will be appropriate to the spaces or areas in which it is located as required by the Regulatory Bodies.

8.11 LIGHTING SYSTEM

In general interior accommodation areas and exterior lighting will be LED. Main lighting system will be supplied at 230Vac through drivers electronically controlled and generally positioned in the distribution switchboard of the area. In black-out condition a few lights will be fed by the emergency batteries.

8.11.1 TECHNICAL SPACES

Technical spaces will be illuminated according to the Builder's standard by a 230Vac system through ceiling lights or bull eye type in smaller areas. Large storage lockers will have sufficient lighting supplied by 24Vdc line, with local switch.
The engine room and the control room will be illuminated by means of IP54 ceiling lights; a switch will be installed in way of the main access.

8.11.2 WHEELHOUSE

A reading light will be provided at the chart position. A red light lighting system will be equipped in the wheelhouse for night navigation.

8.11.3 CREW AREAS

LED type spotlights will be installed in the ceiling of the crew accommodation. Each crew bed will be equipped with a LED reading light.

8.11.4 INTERIOR LIGHTING (VIP & BEACH CLUB)

The lighting in VIP areas and beach club will be based on the installation of ceiling LED type spotlights and strip LED along the edges of the ceiling and in way of steps of internal stairways, as internal courtesy lights.
Each room will be equipped with at least two distinct illumination systems with respective switches.
The Builder will provide and install the following Interior VIP lights, according to Design Booklet (Interior Light Plan):

- LED spots lights
- meter strip LED

including required drivers and power supply units/ transformers.
Interior lighting (Vip & Beach Club) will be from the Builder selection.

8.12 SWITCHES, SOCKET OUTLETS AND RELATED COVERS

Switches, 230Vac 2-pins 16A sockets and related covers manufactured by VIMAR, or similar, will be provided in VIP interior areas, crew areas, wheelhouse, pantry and Captain cabin sockets.
As optional different type of socket will be mounted (OPT). 24Vdc, 230Vac and 400Vac sockets will be installed in engine control room, while in engine room two universal sockets Vimar + GFI30mA will be mounted.

8.13 EXTERIOR LIGHTING

The lighting system will be sufficient to properly illuminate the decks, stairways and passageways, side boarding areas and the aft gangway.
The anchor windlass on the foredeck will be illuminated by lights installed in such a way

as to allow safe working without glare.
Exterior lights will be controlled by local panels and from the wheelhouse.
The Builder will provide and install the following Exterior lights, according to Design Booklet (Exterior Light Plan):

- LED ceiling spots lights
- LED Floor spots lights
- LED Step lights for stairs
- LED lights tubes

including Required buffers, dimmers and power supply units/ transformers.
Exterior lighting will be from the Builder selection.

8.13.1 SEARCH LIGHT

One search light will be installed on the mast and will be capable of being remotely operated from within the wheelhouse.

8.13.2 UNDERWATER LIGHTS

As optional underwater lights for illumination of the stretch of water around the Yacht will be installed, number and position to be agreed with the Builder. Underwater lights will be controlled from the wheelhouse and from the cockpit on the main deck.

8.14 EMERGENCY LIGHTS

All the passages and stairs leading to the Muster station and other locations as required by the Regulatory Bodies will be equipped with a proper number of emergency lights. These will be automatically switched on in the event of a failure or power outage of the main electrical system.
The lights will be fed by emergency battery bank or by an independent reserve power source.

8.15 FIXED FIRE DETECTION AND ALARM SYSTEM

A fixed fire detection and fire alarm system, in compliance with the requirements of the Regulatory Bodies, will be provided and installed.
The system will be fitted in all enclosed spaces, except those containing no significant fire risk (Toilets, bathroom, void space, ecc) and manually operated call points will be placed through-out the yacht to ensure readily accessible means of notification, as required by Regulatory Bodies.

9. ELECTRONICS / ENTERTAINMENT

9.1 NAVIGATION SYSTEM

An innovative integrated dashboard with navigation and automation system will be provided in the wheelhouse. The dashboard will be composed by:

- 4 LCD Monitors 15"
- 2 LCD Monitors touch 15"
- 2 touch pad control
- 2 jog system control
- Bow thruster control lever
- Main engines throttles
- Main engines start/stop buttons and alarm signals + emergency stop buttons
- Main engines key
- Autopilot
- 2 VHF (class D DSC)
- Alarm buzzers

The integrated dashboard will allow the visualition and control (where indicated) of the following items:

- Navigation Monitors configuration Management
- Wheel House Device control scene Management
- Language selector (Italian – English)
- Integrated monitor brightness control (Hatteland)
- Wiper control
- Horn control
- CCTV control
- Search light control
- Fog Horn signalling control
- Wheelhouse light control
- Navigation Light control
- Heading
- Roll & Pitch

- Wind direction and speed
- Sea depth
- Yacht speed
- Compass light control and dimmer
- Steering control panel
- Stabilizer System
- Tank levels, including high and low level alarms
- AC power page (main parameters of converter, shore power and generators where installed)
- DC power page (main parameters of the main items fed by DC current)
- Batteries
- Main engines
- Gearboxes
- External doors and hatches and portholes (where applicable)
- Shell doors
- Internal watertight doors
- Bilge Alarms
- Fire detection system
- Water maker (According signals made available from the water maker as per manufacturer's standard)
- Bilge & fire pumps control
- ER ventilation control
- Vessel name (where back-lit)
- Underwater lights control
- External lights and cabin lights control
- Rudder pump
- Rudder position (RAI)
- Steering mode and take over
- Fire extinguishing
- Gyrocompass

- Engine Data Conning
- Monitoring System
- FAR integration (virtual keyboard)

Wheelhouse panel lay-out and location of navigation and communication equipment will be illustrated to the Buyer's Representative. The most updated version of the equipment at the time of installation, which may be different to the above mentioned, will be installed at builder choice. Extra or different instruments may be supplied as an option. Extra costs may apply.

Wing stations:
Two control stations 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:

- Steering tiller
- Slave bow thruster control lever
- Horn
- Main engine throttles
- Main engines start/stop buttons and alarm signal, emergency stop buttons
- Rudder angle indicator
- Engines RPM gauges
- Alarm buzzers

9.1.1 NAVIGATION EQUIPMENT

The following navigation equipment will be supplied and installed:

- 1 autopilot, complete with gyro compass
- 1 echo-sounder with LCD colour display
- 1 wind station
- 1 electromagnetic speed log
- 1 AIS (Automatic Identification System)
- Navigation sensors including:
  - n.1 radar, 6kW, open array 4ft FAR antenna
  - n.1 radar, 4kW, Radome 24"antenna
  - n.3 GPS
  - n.1 Gyro compass

  - n.1 Flux gate system
  - n.1 magnetic compass
  - n.1 Weather station
- Charting plotter system including:
  - n.2 independent processor black box

9.1.2 NAVIGATION LIGHTS

The navigation lights will be according to COLREG 72 regulations. As reference, the following approved lights will be installed:

- n.1 white, masthead, navigation light
- n.1 white, stern lights
- n.1 red, port navigation light
- n.1 green, stbd navigation light
- n.1 white, anchor light
- n.4 red, not under command lights.

The navigation lights will be controlled by a panel installed on the wheelhouse. Audible and visual alarm to be provided to indicate failure of any navigation light.

9.1.3 HORN

One (1) air horn will be installed.
Air pressure type with solenoid valve connected to the main air pressure system with local air receiver complete with control panel with fog signal timer installed on the bridge.

9.2 MONITORING SYSTEM

An Alarm and Monitoring System (AMS) will display a few yacht data by means of monitors positioned as follows:

- n.1 integrated in the dashboard in wheelhouse (15")
- n.1 touch screen in the crew mess (15"): only the AMS pages will be shown
- n.1 in the engine control room (15"): only the AMS pages will be shown

The system's general architecture is based on one or more electronic I/O modules that are connected to the onboard devices, a network cable that connects them, one or more main processors (CPU), and one or more LCD displays or PCs with touch screen.

9.3 COMMUNICATION SYSTEM

The radio installation to be of the approved (wheel marked) type where and according to the requirements of the Regulatory Bodies as applicable and to the GMDSS specifications, areas A1, A2 and A3. The following equipment will be installed as standard:

- 1 VHF radiotelephones with DSC GMDSS class A
- 1 VHF radiotelephones with DSC GMDSS class D with 3 handsets in Wheelhouse, Captain's Cabin, Crew Dinette
- 2 portable VHF GMDSS apparatus
- 1 radiotelephone SSB GMDSS – DSC
- 1 NAVTEX receiver
- 1 EPIRB 406MHz, GMDSS, with hydrostatic release
- 1 radar transponder, GMDSS (SART)

9.4 NETWORK/TELEPHONE SYSTEM

The IT system will consist of a LAN network and a dedicated WIFI network for on board information technology services, on board entertainment and AV systems. The system will be compatible with latest protocols and technology available at the time of installation of the equipment. PC's, laptops, tablets and other devices used for on-board information technology will be Buyer's supply.
The yacht will be provided with an internal communication system controlled by a PABX central unit. Cordless telephones and RJ45 Ethernet plugs will be placed in the following areas:

- wheelhouse
- main deck salon
- galley
- upper lounge
- master cabin
- vip cabin stern starboard side
- vip cabin stern port side
- guest cabin starboard side
- guest cabin port side
- captain's cabin upper deck
- engine control room

9.5 INTERCOM SYSTEM

An intercom system powered by the emergency supply line will be installed in the following locations:

- n.1 Central station with microphone in the wheelhouse
- n.1 Talk back station with headphones in the engine room at the local engine control post
- n.1 Talk back station in the engine control room
- n.1 Talk back station at bow mooring post
- n.1 Talk back station at stern mooring post.

9.6 CCTV SYSTEM

CCTV surveillance system will be provided with n.8 cameras positioned as follow:

- n.2 colour day/night camera in engine room
- n.2 colour day/night camera in engine control room
- n.2 waterproof camera on the ceiling in the external main deck corridor (one for each side)
- n.2 waterproof camera on the ceiling in the external main deck cockpit

The cameras will be placed for best view and so that normal lighting does not blind the cameras. The system will be integrated with the monitoring system.

9.7 ENTERTAINMENT SYSTEM AND IT

A high standard integrated audio video (AV) system with centrally installed media server, satellite receiver and other necessary equipment will be installed according to the AV Matrix below. Luxury and crew areas will be provided with LED TV's and appropriate sound systems as described in the below AV matrix. The TV system will be based on one (1) KVH, or equivalent, satellite antenna and one (1) omnidirectional land antenna with TV, AM/FM. Standard cabling for an integrated system will be included in all areas. A centralized entertainment system will be provided, with 2 main rack units placed in a dedicated area (as per General Arrangement Plan). The system distribution will be according the following audio video matrix.

Audio	**Apple TV / Airplay**	**BD/ DVD/CD Player**	**SAT TV**	**BT USB AUX**	**Party Mode**	**Control**	**TV**
Aft Cockpit Upper Deck - Aft Cockpit Main Deck							

Audio	Apple TV / Airplay	BD/ DVD/CD Player	SAT TV	BT USB AUX	Party Mode	Control	TV
4 Speakers	-	-	-	-	Yes	Volume Keypad	-
Sun Deck - Fore							
2 Speakers	-	-	-	-	Yes	Volume Keypad	-
Upper Salon - Main Salon							
Surround 5.1	AppleTV4 Access point	-	Receiver	USB	Source	iPad Mini	TV 50" TV 55" + ceiling system
Owner's Cabin							
Surround 5.1	AppleTV4 Access point	-	Receiver	USB	-	iPad Mini	TV 50"
Vip Cabins (2x) - Guests Cabins (2x)							
2 Speakers	AppleTV4 Access point	-	-	USB	-	iPad-Mini	TV 40" TV 32"
Galley							
2 Speakers	-	CD	-	BT	-	Original Remotes	-
Captain Cabin & - Wheelhouse							
4 Speakers	-	CD	-	BT	-	Original Remotes	-
Crew Dinette							
2 Speakers	-	DVD / CD	-	BT	-	Original Remotes	TV 28"
Crew Cabins (3x)							
2 Speakers	-	CD	-	BT	-	Original Remotes	-

Audio	Apple TV / Airplay	BD/ DVD/CD Player	SAT TV	BT USB AUX	Party Mode	Control	TV

The Audio Video on demand system will be based on a media server system.

In order to avoid damage to the Audio video and Entertainment System, caused by temporary blackout, the system will be also connected to the yacht UPS (UPS runtime less than five minutes).

For the IT SYSTEM the following equipment will be provided:

- n°5 access point Wi-Fi
- Network switches system
- 4 G/LTE Modem
- Wi-FI bridge
- TV SAT

10. INTERIORS-EXTERIORS AND DÉCOR

10.1 GENERAL INTERIORS AND DÉCOR

Furniture, fittings and layout will be according to the Contractual Standard General Arrangement Plan which will be part of the building specifications. All materials and all works shall be of outstanding quality and according to the Builder Standard décor book. Floating floor and other means of special insulations shall be fitted to achieve high comfort standards. Wood timber and finishing and in general interior decoration will be chosen by the Buyer among Builder selection. Time schedule of Buyer's definitions will be agreed at contract signature (Buyer's decision list). Any modification and/or allowances upgrade, requested by Buyer will be quoted accordingly.

10.2 PARTITION

The main partitions will be made with soundproofed marine plywood for separation walls, covered with high quality wood.
Lower deck Guest area:

- Lobby
- Staircase MD- LD
- Port VIP cabin (aft) with walking closet
- Port VIP bathroom with separated wc and bidet
- Stbd VIP cabin (aft) with walking closet
- Stbd VIP bathroom with separated wc and bidet
- Port Guest cabin (fwd) with walking closet
- Port Guest bathroom with separated wc and bidet
- Stbd Guest cabin (fwd) with wardrobe
- Stbd Guest batroom with separated wc and bidet
- Beach area at stern

Main deck:

- Main salon
- Main lobby
- Staircase MD-UD
- Day toilette
- Owner's study
- Owner's cabin with dressing

- Owner's and bathroom with two sink, two separated wc and bidet and shower in the center
- Pantry
- Galley
- Crew corridor and staircase

Upper deck:

- Upper sky lounge
- Lobby
- Pantry
- Day toilette
- Pilot house
- Captain's cabin
- Captain's bathroom

Crew area:

- Staircase
- Crew dinette (port side)
- Stbd Hostess single bed cabin with bathroom (Pullman bed available as option)
- Crew corridor
- Storage/cold room
- Stbd twin beds cabin with bathroom
- Port twin beds cabin with bathroom

If the Charter/MCA LY3 compliance will be required for the yacht, the crew area will be subject to possible modifications.

10.3 INTERIORS FLOOR LININGS

Furniture, fittings and layout will be according to the Contractual Standard General Arrangement Plan which will be part of the building specification. All materials and all works shall be of outstanding quality and according to the Builder Standard décor book. Floating floor and other means of special insulations shall be fitted to achieve high comfort standards. Time schedule of Furniture, fittings and layout will be according to the Contractual Standard General Arrangement Plan which will be part of the building specifications. Wood timber and finishing and in general interior decoration will be chosen by the Buyer among Builder selection. Any modification and/or allowances upgrade, requested by Buyer will be quoted accordingly. Definitions will be agreed at contract signature. Feasibility study will be carried out by the Builder giving evaluation on time, cost and performances impact if planned.

Lower deck Guests area:	
Lobby	Carpet
Staircase MD-LD	Wood veneer with antiskid treatment
Cabins	Carpet
Bathrooms	Marble

Main deck:	
Main saloon	Carpet
Lobby	Carpet
Staircase MD-UD	Wood veneer with antiskid treatment
Day toilette	Marble
Owner's study and cabin	Carpet
Owner's bathroom	Marble
Pantry	Vinyl floor
Galley	Vinyl floor
Crew corridor and staircase	Vinyl floor

Upper deck:	
Upper sky lounge	Parquet
Lobby	Parquet
Day toilette	Marble
Pilot house	Parquet
Captain's cabin	Carpet
Captain's bathroom	Parquet
Pantry	Vinyl floor

Lower deck Crew area:	
Crew dinette and corridor	Vinyl floor
Laundry	Vinyl floor
Storage / cold room	Vinyl floor
Crew cabins	Carpet
Crew bathrooms	Wood
Staircase to UD	Vinyl floor

10.4 OWNER'S AND GUESTS INTERIOR LININGS AND FURNITURE

Hull sides, superstructure sides and bulkheads will be lined using class 2 and 3 wood panels covered with top quality wood Alpilignum for furniture. Panels will be glued and stiffened where required. The Builder will take care to install the furniture with the necessary gaps to avoid squeaking noise. Removable sections will be provided to access the technical equipment or components (valves, electrical panels, underwater lights, etc). Wall linings will be covered with fabric, leather, veneer or lacquered wood and according to the Builder décor book. Woods, fabrics, leather and veneers will be chosen from the Builder selection and be quoted accordingly if not Standard. The ceilings will be made in class 2 and 3 wood panels and fitted with easily removable system, on the metallic structure elastically mounted. The built-in furniture will be made using a combination of solid wood and veneered plywood. The hardware will be of high quality type, cabinet doors hinged and drawers guides will be with slow motion system. Doors will be made of double plywood sandwich panels and will be veneered (Alpiligum), lacquered, mirrored or upholstered according to the décor book. Doors handles will be according to the Builder décor book, can be chosen from the Builder selection and be quoted accordingly. All the doors will be provided with stoppers, to hold the doors in open position. The Owner's and Guests beds will be fitted with slatted base that can be opened to have access to the storage. The mattresses will be according to the Standard Décor Book and there shall be some clearance between the mattress and the bed frames. Special requests which are not planned on the Standard will be quoted accordingly. Air conditioning grids will be integrated in the design of the furniture, taking care of the section for the air flow (inlet-outlet) according to the A/C supplier. Staircases will be treated with antiskid and metallic, glass or wooden hand rail will be provided according to the Builder's best practice. Window curtain boxes, in the cabins, will be fitted with the recessed rails for the blinds to get the maximum black out. The windows curtain boxes will be made of lacquered or veneer as per the Builder décor book. The Customer can select a special decoration with the Builder team of architects, that will be quoted accordingly if out of the Standard Décor Book.

10.5 GALLEY

The galley will be ICON model by Ernestomeda, a product customized for the net space of the yacht, with integrated appliances installed, matt lacquered finishing and quartz-resin top. Colour and materials as per the Builder décor book.

10.6 LINEN

For the Owner and four double Guests beds:

Pillows, bedspread and sheets set will be supplied for each bed

For the Crew beds (Captain included):

Pillows, bedspread and sheets set will be supplied for each bed

Bathrooms:

- Owner's:
  - 2 bath towels (around 100x150cm)
  - 4 towels (around 40x60 and 60x110cm)
- Two VIP and two Guests (port and stbd):
  - 2 bath towels (around 100x150cm) each
  - 4 towels (around 40x60 and 60x110cm) each
- Captain:
  - 3 towels
- Crews (five people):
  - 3 towels (each)

Request for linen customization with the yacht name or something else, will be quoted accordingly.

10.7 CROCKERY, CUTLERY AND GLASSWARE

For the Owner and Guests, a complete table accessories set for 12 people will be provided. Dedicated storage will be provided with plexiglass supports for dishes and glasses. Cutlery will be provided in a dedicated casket. For the Crew, Captain included, a complete table accessories set for 6 people will be provided and arranged with custom supports in dedicated storage.

10.8 EXTERNAL FIXED FURNITURE

In main cockpit a fibreglass structural sofa with upholstery will be fitted.
On sun deck, fiberglass furniture with teak details on stairs and top and stainless steel handrail will be fitted for the Jacuzzi mini-pool. A fixed bar furniture, made in corian on an aluminum structure, will be fitted in the port side of the sun deck area. A sink will be integrated in the furniture. Grill and fridge will be installed and hidden by hinged doors. Corian colors as per the Builder décor book. Request for changes of materials and shape design can be evaluated and will be quoted accordingly.

10.9 FREE STANDING FURNITURE

Free standing furniture like tables, chairs, sofas, armchairs, stools, for internal and external areas, will be provided with the yacht, in accordance with the standard General Arrangement and as per the Builder décor book.

10.9.1 INTERIORS

Area	Free standing	Brand & model	Notes
Main salon	1 armchair	Minotti WHITE or equivalent	upholstery cat. G
Main salon	1 coffee table	Minotti or equivalent	
Dining area	1 dining table	Minotti MORGAN or equivalent	top laquered
Dining area	10 chairs	Minotti OWENS or equivalent	wood structure upholstery cat. G

10.9.2 EXTERIORS

Area	Free standing	Brand & model	Notes
Main cockpit	1 sofa	Roda - NETWORK or equivalent	Teak / belt grey Cushions in shore fabrics
Main cockpit	2 armchairs	Paola Lenti or equivalent	Teak / belt grey Cushions in shore fabrics
Main cockpit	1 small table	Roda - NETWORK or equivalent	Teak top HPL grey
Upper cockpit	1 sofa	Gloster - GRID or equivalent	upholstery cat. G
Upper cockpit	1 small table	Gloster - GRID or equivalent	
Upper cockpit	1 dining table with 10 chairs	Dedon or equivalent	
Sun deck	1 sofa	Roda - Double or equivalent	
Sun deck	2 stools	Paola Lenti or equivalent	
Sun deck	1 coffee table	Roda - Root or equivalent	
Sun deck	3 sunbeds	Roda - Orson or equivalent	

The Customer can select different model and decoration with the Builder team of architects, that will be quoted accordingly.

10.10 CAPTAIN'S AND CREW INTERIOR LININGS AND FURNITURE

Hull sides, superstructure sides and bulkheads will be lined using class 2 and 3 wood panels, covered with top quality wood Alpilignum for furniture. Panels will be glued and stiffened where required. The shipyard will take care to install the furniture with the necessary gaps to avoid squeaking noise. Removable sections will be provided to access the technical equipment or components (valves, electrical panels, underwater lights, etc). Wall linings will be with Alpilignum Oak and upholstered with white synthetic leather. Ceilings in cabins, dinette, laundry and storage/cold room will be upholstered with white synthetic leather. The bathrooms walls, ceilings and furniture linings will be in matt white laminated and lacquered. The ceilings will be fitted with easily removable system, on the metallic structure elastically mounted. The dinette table will be veneered with Alpilignum Oak and fitted on two stainless steel bases. Doors will be made of double plywood sandwich panels and veneered with Alpilignum Oak. The mattresses will be custom made with foam and shall be some clearance between the mattress and the bed frames. Special request will be quoted accordingly. Staircases will be treated with antiskid, and metallic, glass or wooden hand rail will be provided. Window curtain boxes will be lined with white laminated.

10.10.1 APPLIANCES

Domestic equipment will be supplied in accordance with the standard appliances Plan.

Galley:

- n°1 electric glass/ceramic 5 burner cooking top
- n°1 hood
- n°1 oven
- n°1 dishwasher
- n°1 fridge - freezer
- n°1 fridge
- n°1 trash compactor

Pantry main deck:

- n°1 microwave oven

Main Salon:

- n°1 drawer fridge

Upper deck bar furniture:

- n°1 icemaker

Pantry upper deck:

- n°1 fridge 42l

Sun deck:

- n°1 fridge
- n°1 grill

Crew mess:

- n°1 microwave oven

Laundry (crew area):

- n°1 dryer
- n°1 washer

10.11 DOMESTIC APPLIANCES

10.12 LOOSE DECORATIVE LAMPS

The following loose decorative lamps will be provided and installed by the Builder according to the Design Booklet (Decorative Lamps Plan):

- Berth reading lamp
- One (1) Chart table reading lamp (Wheelhouse)

Loose decorative lamps will be chosen among the Builder selection.

11. TRIALS AND DELIVERY DOCUMENTATION

11.1 TRIALS AND DELIVERY DOCUMENTATION

A full program of inspections, start-up of systems, trials and tests, including sea trials, shall be carried out prior to the delivery of the ship, and in accordance with, and to the satisfaction of, the Classification Society. All the trials shall be carried out by the Ship-yard, under its own responsibility, utilising its personnel and its experience and practices. Where required the trials shall also be carried out in the presence of the representative of the Administration and Classification Society.

11.1.1 DOCK TRIALS

The following list includes the main dock tests that will be performed under the control of the Builder:

- Electrical system
- Generators test
- Shore power system
- Emergency lights
- Navigation systems
- Monitoring system
- Main Engines
- Steering system
- Air conditioning and ventilation system
- Fresh and sewage water systems
- Bilge system
- Fuel system
- Fixed firefighting system
- Fire pump and hydrants
- Fire and smoke detection system
- Deck drainage system
- External weather tight doors and windows hose test
- Shell doors, watertight and functional test
- Gangway test
- Tender launching and recovery arrangements
- Fire and watertight doors functional test

- Lifesaving appliances
- Galley equipment
- Laundry equipment
- TV and entertainment system
- Mooring and warping arrangements
- Jacuzzi functional test
- Any other test and trials as required by the Regulatory Bodies.

In case one or more of the above tests refer to system and/or equipment not foreseen in this Technical Specification, the corresponding test will not be performed.
Any defects found during the dock trials for those systems strictly necessary for the sea trials will be rectified before proceeding with sea trials.

11.1.2 INCLINING EXPERIMENT

Where requested by Regulatory Body, once the Yacht has been sufficiently completed, an inclining experiment will be made by the Builder. The Builder will provide all necessary labour and material to perform the experiment.

11.1.3 SEATRIALS

On sea trials, the Yacht will be manned and under command of Builder's master. The Builder will provide all necessary labour for the proper execution of the trials, as specified, and will arrange for the attendance on trials of all necessary maker's representatives to complete the commissioning carry out any settings for the relevant systems. All costs, including manning, fuels, equipment and instrumentation will be Builder's account. Prior to official sea trials with the Buyer's Representative the Builder may elect to carry out preliminary sea trials.
Official sea trials will be carried out under good weather conditions as indicated in Chapter 1.
Loading condition during official sea trial will be trial load condition as defined in Paragraph 1.3.1.
During official sea trials a thorough examination will be made of the Yacht and its components and all machinery, equipment and systems will be operated under normal service conditions as far as practical.
The sea trials will include, at least, the following tests:

- Main engines
- Diesel generators
- Manoeuvring trials Steering and emergency steering systems
- Speed trials at 50%, 75% and 100% MCR (Maximum Continuous Rating).
- Navigation equipment

- General alarm
- Speed log and Echo-sounders
- Anchor and windlasses
- Stabilisers system, according to the Manufacturer standard
- Bow thruster

In case one or more of the above tests refer to system and/or equipment not foreseen in this Technical Specifications, the corresponding test will not be performed.
Any defects revealed during tests will be rectified by the Builder.

11.1.4 DOCUMENTATION

The following drawings and documents (as applicable in accordance with this Technical Specifications) will be handed over to the Buyer's Representative for information at the delivery of the Yacht:

- Capacity plan
- Safety and fire plan
- Keel blocks plan
- Engine room ventilation
- Engine room lay-out
- Rudder arrangement
- Shaft line
- Detail of Exhaust gas MMPP
- Bilge and fire system
- Sea water system
- Fresh water system
- Black and grey water system
- Fuel system
- Stability Booklet

The Builder may collect two or more drawings of the above list in a single document and vice versa.
All manuals and drawings will be drawn in English language.

12. GENERAL ARRANGEMENT PLANS

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CUSTOM LINE

BEYOND THE LINE

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