

GC72PC

DESIGN BRIEF

The GC72PC is designed as a medium speed, fuel efficient, private yacht whose primary role is to cruise and fish in the Bahamas.

The structure will be built using resin infusion, wet-bagging and other composite construction techniques using epoxy resins for strength, durability and ease of maintenance. The vessel will be a displacement catamaran hull form, with twin diesel engines and fixed propeller propulsion system. Hull draft will be 3' with a 5'3" prop draft for access to shallow water. The hull lines are designed to minimize wake wash effects and fuel consumption.



SPECIFICATIONS

LOA	72'
BOA	29.7'
Draught	4'10"
Light Ship Weight:	85,000 lbs
Full Load Displacement:	100,000 lbs
Cruise Speed:	20 knots
Top Speed:	24 knots

FEATURES

CONSTRUCTION

Hulls are built of Gurit Corecell linear polymer foam, unidirectional glass and CPD epoxy resin. Hull bottoms will be resin infused in a female mold. Hull sides, decks, bulkheads, cabinsides, windshields, roofs and other flat panels will be wet bagged on a male mold. Other components and amenities will be built using West System construction methods.

Exterior

- DuPont marine polyurethane paint system
- Commercial yacht finish

Interior Finish

- Semi gloss DuPont marine polyurethane paint system
- Commercial wall & ceiling coverings

Paint & Graphics

- Dark Blue topsides, White cabins, decks
- Choice of colors for topside stripe
- Decks painted with non-skid in DuPont marine polyurethane paint
- 2 Coats bottom paint, 3 on waterline
- Bottom paint extends from keel to 10" above DWL.
- 3" Name and hailing port on aft beam

PROPULSION SYSTEM

The propulsion package consists of two marine diesel engines, one per hull, each powering one fixed propeller via a reversing marine gearbox. The design of the entire machinery system, including main engine, shafting, and propeller shall be such that at all speeds within the operating range, the operation will be free from all serious forms of vibration. The builder shall furnish complete propulsion packages including the main engines, gears, couplings, shafting, bearings, seals and propellers.

MAIN ENGINES

(2) Cummins QSM11, turbocharged and after cooled, rated 715 BHP (526 KW) each at 2500 rpm, engines will be resiliently mounted. Each engine will be fresh water cooled and fitted with a heat exchanger connected to seawater supply piping as provided by manufacturer. Engines will be installed in accordance with manufacturer's requirements and/or recommendations.

REDUCTION GEARS

The two gear boxes will be single speed output, ZF 325A marine gear or equivalent. Ratio of engine speed to gear output to be confirmed.

SHAFT AND PROPELLER

The shaft will be 2-3/4" x 14'0" +/- length Aquamet 22 SAE standard propeller taper companion end taper and with split couplings.

Two counter rotating three (3) blade fixed pitch propellers made in Nibral will be fitted. A PSS drip less shaft seal from PYI will be included. The struts bearings and shaft tubes bearings will be by Duramax.

PROPULSION CONTROLS

A Glendenning three station control system will be fitted. It will consist of one main control station and two fly bridge stations, one forward and one aft. The main engines will be arranged for key operated start and stop from controls in the pilot house. Flybridge (forward and aft) and engine rooms will provide start/stop control.

MACHINERY MONITORING

Each main engine is to have a standard monitoring panel mounted at the pilothouse and forward flybridge using electronic multi view panels giving at minimum the following information:

- Coolant water temp
- Lube oil pressure
- Gear oil temp
- Gear oil pressure
- Primary alternator voltage
- Turbo Boost

Each main engine will be fitted with gauges for oil pressure and coolant temperature mounted on the engine.

EXHAUSTS

Propulsion engines will be provided with suitable exhaust gas silencing systems and appropriately sized piping, hoses and clamps to meet engine manufacturer's requirements and specifications, specifically back pressure. Exhaust will be of the wet type.

STEERING

An appropriate sized JASTRAM electronic/hydraulic system will be fitted and interfaced to the autopilot to steer the port and starboard rudders using bronze tiller arms.

ELECTRICAL

Two generators will be set up with a split bus system allowing use of either or both of them to supply the power. (**Generator size and system configuration subject to final load analysis and load balance considerations**)

SYSTEM VOLTAGE

AC voltage – 120/240V, 3 wire/4 wire, 60 Hz,
Single phase
DC voltage – 12V, 2 wire

GENERATION

Ship service electric power will be provided by either or both of two diesel-driven, raw water cooled, resiliently mounted, AC generators. The generators will be identical Northern Lights in sound enclosures. Each generator will output 20 KW/120V/240V 60 Hz/single phase. Generator

raw-water cooling will be provided by sea suction, located as low as possible on the VESSEL bottom. Strainers will be provided. Generator diesel exhaust will have water injection, through manufacturer supplied wet elbow and will pass through a water-lift type muffler. Generator exhaust will discharge through the hull.

POWER DISTRIBUTION

The power distribution system shall be designed for 240 VAC, single phase 60hz for large power demands, 120 VAC single phase 60 Hz for lighting and general purpose. 12VDC will be used for direct current applications and emergency systems. Switchboards, panels, breakers and cables will be in accordance with ABYC requirements.

SHORE POWER

A double Hubbell or equal shore receptacle will be provided on the foredeck to receive two (2) 100 amp input, 240VAC single phase power 3 pole/4 wire.

LIGHTING

Guest and operational spaces will be lighted by 12 VDC. Fixtures are to be marine grade, suitable for application and will be switched locally at main entrance to each area. Master stateroom, Living Room, Upper Helm and Galley will each have two units of lighting with switches; all other cabins will have one. Lighting will be LED type.

INTERIOR LIGHTING

Lighting will be recessed into ceiling linings (where possible). Hull compartments will be fitted with single and double water resistant fixtures. Each toilet area will be fitted with a single surface mounted fixture. The lighting in the wheelhouse will be fitted with a dimmer controls and red night lighting. Additionally emergency lights will be fitted in the engine room and a chart table light will be provided at the pilot house.

EXTERIOR DECK LIGHTING

Deck lights will be provided in the following locations and will be switched from the inside of the accommodation entrances and wheelhouse: Eight (8) on the main deck, three (3) on the upper deck and three (3) on the flybridge. Deck lights

shall be positioned to avoid glare. Lighting will be LED type

SEARCH LIGHT

One ACR RCL-100 searchlight or equal, complete with ACR Universal Remote Control Point Pad will be fitted atop the pilothouse and will be controlled from the operating station console inside the pilothouse.

NAVIGATION LIGHTS

Navigation lights and controls will be installed in accordance with the COLREGS consisting of; steaming light, port light, starboard light, stern light, anchor light.

The lights will be individually controlled by a panel located in the control station.

RECEPTACLES

Inside and outside AC receptacles shall be provided. Receptacles rated at fifteen (15) amperes, 120 VAC, single phase will be provided in machinery spaces; and Receptacles rated fifteen (15) amps will be provided in crew and guest spaces, as well as the pilothouse. Appropriate receptacles with ground fault interruption will be provided for weather deck areas, engine rooms and wet locations.

Receptacles throughout the VESSEL will be located as follows; Four (4) receptacles in the living/dining room, Five (5) in the galley, Two (2) in each guest cabin, Three (3) in the captain's stateroom and Four (4) in the master's stateroom and Three (3) in the helm station. Closets in the masters and captains staterooms will have external switches for internal lighting. The flybridge will be equipped with Two (2) weather proof receptacles.

BATTERIES AND CHARGING EQUIPMENT

Six 12V batteries shall be provided, one each for port and starboard engine starting, one each for port and starboard generator starting, which also provides redundancy for engine starting, and a Two (2) battery bank for supply of essential services. Two multi-bank chargers will be installed providing maintenance charging and DC supply for vessel needs. All battery banks will be provided with bridge readouts for voltage. All batteries will

be sealed, maintenance free, AGM type. Batteries will be identical 12V units, as far as possible, and will stow in GCY battery boxes. Battery switches will be Blue Seas.

NAVIGATIONAL AND COMMUNICATION EQUIPMENT

The following Raymarine navigation equipment will be supplied and fitted:

- (1) GPM Central processor module for the G series network including platinum charts for North America, gold charts for Caribbean.
 - (2) G Series command center keyboard
Pilothouse and Flybridge
 - (1) G-Series Compact keyboard
Aft Deck station
 - (1) G120 Marine Display
Aft Deck Station
 - (2) G170 Marine Display
Pilothouse and Flybridge
 - (1) 12KW Super HD 48 inch open array
RADAR
 - (1) DSM400 HD Sounder Module 3KW
Digital sounder
 - (1) R309 Ultra High performance thru hull
Transducer
 - (1) CS4500 Ultrasonic speed transducer
Speed Log
 - (1) T42 Precision temp sender
Water Temperature
 - (2) Ray218 VHF radio, Class D DSC, Hailer
Pilot house and Flybridge
 - (1) Raymic full function remote
Aft Deck Station
 - (1) Smartpilot X-Sol core pack
Autopilot controller
 - (2) ST70 Color Autopilot control head
Pilothouse and Flybridge
 - (1) AIS500 Class B transceiver
Pilothouse
 - (1) Raystar 125 Differential GPS antenna
Roof
 - (2) Seataalk Network switch
System
- Asst Cabling, connector, interfaces

SATELLITE COMMUNICATIONS

KVH Track phone Broadband F250 SAT Internet System w/ Dome, best new technology will be

assessed at time of purchase. WIFI Booster extender antenna with wireless router.

HORN

One electro-pneumatic air-horn will be provided and installed in accordance with COLREGS. A horn button will be fitted at the pilot house and flybridge control stations.

SMOKE AND FIRE DETECTION AND ALARM SYSTEM

Appropriate UL listed smoke and fire detectors will be installed with alarm to a panel in the pilot house console.

BILGE ALARM SYSTEM

High Bilge level alarms will be provided and installed in the pilot house console.

TANK LEVEL INDICATOR SYSTEM

A tank level indicator system will be provided to serve two (2) fuel oil tanks, two (2) freshwater tanks and two (2) black water tanks. It will be located in the pilothouse

AUXILIARY SYSTEMS

All system pipe work materials, excluding resilient connections, installed by the yard are to be in accordance with the following table:

System	Material
Bilge – Engine Room	Bronze / High Quality hose
Bilge – Outside of E.R.	Polyethylene/ABS or equivalent
Fresh Water piping	PEX Tubing
Engine Exhausts	Centek Exhaust tubing/ Shields reinforced exhaust hose
Hydraulics	Thick walled Copper and/or Parker Hydraulic hose
Oil -fuel	Copper and/or Parker hose
Sea water circulating	Shields hose

All pumps and systems will be arranged with access for service and maintenance in mind.

CABIN VENTILATION SYSTEM

Exhaust fans will be provided for the toilet spaces and over the stove/oven.

HVAC EQUIPMENT

The Master stateroom, Captain's quarters, guest's quarters, pilothouse, galley and crew spaces are to be provided with an air conditioning system by Flagship Marine. It will be a chilled water system with electric heat

- (2) Chiller units, 96,000 BTU each @ 240 VAC
- (2) 36K BTU air handlers w/4kW electric heat (Master Stateroom, Main Salon)
- (2) 24K BTU air handlers w/4kW electric heat (Pilothouse, Galley)
- (2) 16K BTU air handlers w/2kW electric heat (Captains quarters, Upper Guest)
- (4) 9K BTU air handlers w/1.7kW electric heat (Lower Guests, Crew Hull P&S)

Individual thermostats will be provided in each space listed.

ENGINE ROOM VENTILATION

The engine room is to be ventilated by forced supply and natural exhaust. Air supply volume will meet requirements of engine manufacturer for depression and engine room temperature. Exhaust fans will be provided.

BILGE SYSTEM

Each void will be equipped with a UL listed 2000 submersible bilge pump, to draw water from the bilge and discharge overboard in each hull.

FUEL OIL

Two 6061 Aluminum ¼" wall fuel oil storage tanks of 1,000 gallons capacity each, port and starboard, pressure tested, will be installed with a total capacity of 2,000 gallons. Refueling is arranged from mid-ships with the fill and vent lines located in a single retention box. A graduated fuel meter for each tank will be located at the fill station.

Tanks will be set up so that they can be dip-sticked for confirmation. In addition there will be an ESI fuel polishing / transfer system using RACOR filters that can transfer from one tank to the other tank.

FRESH WATER

Storage for 200 gallons of fresh water is to be provided in Port and a Starboard tanks (400 total). Both fill and vent connections will be located amidships. A tank level indicator is to be fitted with the gauge in the pilot house. Two Mach 5 Head Hunter pumps will be provided to supply the water to the galley and the bathrooms. Two tankless hot water heaters mounted directly after the pumps will provide the above locations with hot water. A Sea Recovery 1400 Water Maker will be installed with control valves to direct to Port or Starboard tankage.

BLACK WATER

There will be a Port and a Starboard integral holding tank of approximately 200 gallons capacity each. There will be discharge fittings on the main decks suitable for standard connection for pump out to shore or truck suction hose. All water drains will be led as directly as possible to the waste water holding tanks. All sanitation and service systems will be provided with adequate "P" traps. A waste water treatment system will be installed.

TOILET SYSTEM

Toilets (10) are to be standard Headhunter marine low flush, using the vessels fresh water pressure system for their supply water. Toilets are to discharge into suitable approved sewage retention system, as detailed above.

FIRE SAFETY

Engine Rooms

Each engine room compartment will be fitted with a Fireboy MA-375 FE 241 manual / automatic fire suppression system.

Portable fire extinguishers:

5 Portable fire extinguisher, B-I class, CO2 type, will be provided.