

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Contract title: Supply of Coastal Patrol Boats

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Publication reference: publication reference

Columns 1-2 should be completed by the contracting authority

Columns 3-4 should be completed by the tenderer

Column 5 is reserved for the evaluation committee

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

- Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
- Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words 'compliant' or 'yes' are not sufficient)
- Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specifications.

1. DEFINITIONS AND ABBREVIATIONS

Introduction and General Description

Coastal Patrol Boat (CPB) shall be able to perform missions along coastal and shallow waters, in moderate weather with the sea states and wave heights as described in the Technical Specifications. CPB shall be able to perform typical missions including Search and Rescue (SAR), Patrol, Maritime Law Enforcement (MLE), Diving and Port, Waterways, and Coastal Security (PWCS). CPB especially shall be able to obtain survivors from the sea surface by means of aft rescue platform. CPB shall be capable of tactical and interdiction operations which include performing high speed manoeuvres and turns in close proximity of another vessel. The vessel shall be designed to protect the crew from the environment. The construction, furnishing, engines, propulsion, as well as dimensions, speed, range, towing requirements and specifications for generator, HVAC systems and navigational electronic equipment are also described in the Technical Specifications. CPB shall have the ability and structural strength of landing to the beach. CPB shall be designed, built and tested according to appropriate rules of IACS member institutions or Turkish Lloyd.

Definitions

CPB, “the boat,” and “the vessel,” all refer to the Coastal Patrol Boat as defined in this Specification.

- **Maximum Length:** This length includes all structural and integral parts of the boat, such as stems or sterns, bulwarks, hull/deck joints, fendering system, rescue platform.
- **Maximum Draught:** The maximum draught shall be measured as the vertical distance between the waterline in normal operating load condition and the lowest point of the underwater body or appendage, including centreboards and propulsion system equipment.
- **Maximum Continuous Speed:** The speed which is obtained by using maximum allowable engine rpm of the engines at least 2 hours continuously.
- **Normal Operating Load Condition:** This mass includes; structure of the CPB, 90% necessary fluids (fuel, oil, water, dirty water), 3 persons (each of the persons shall have the weight of at least 85 kg.), both permanent and loose internal and external equipment and extra 150 ±5 kg weight on behalf of Coast Guard operational equipment. This mass definition is for speed, maximum range, stability and manoeuvrability calculations and tests.
- **Economical (Cruising) Speed:** The optimal speed of a vessel taking into account hull form, engine and propeller functions and fuel economy.
- **Maximum range:** Maximum distance achieved by CPB with economical (cruising) speed for at least 8 hours.
- **Watertight:** The vessel shall be designed and constructed to withstand a static head of water without any leakage. The electrical equipment shall also be watertight. Watertight capability of the equipment shall be proved by the contractor presenting an IPX6 certificate issued by the manufacturer of the equipment. If there is no available certificate for the equipment, than the appropriate test for the IPX6 standard according to TS 3033 EN 60529 or equivalent shall be accomplished by the contractor and a certificate shall be issued for the equipment by the contractor. In any circumstances structure of the hull, compartments and main deck are excluded from this definition and they shall have completely watertight.
- **Weather tight:** The vessel shall be secured against wind, rain, etc. The equipment shall also be constructed or protected so that exposure to a beating rain will not result in the entrance of water.

- **New:** Equipment and parts shall be unused, shall not be repaired and/or renewed and/or not overhauled. More than 20% of shelf-life of equipment shall not expire at the time of provisional acceptance.

Referenced Documents

Where the standards such as the Conformité Européenne (CE), International Association of Classification Society (IACS), Turkish Lloyd, SOLAS, MARPOL, International Organization for Standardization (ISO) etc. are referred to, the issue or revision in effect on the date of release of this tender or their equivalents shall apply.

General Requirements

Unless otherwise specified, construction of the CPB and installation of all equipment and systems shall be in accordance with the CE, IACS, ISO, OEM, Turkish Lloyd, IMO, MARPOL, SOLAS or COLREG rules. The contractor shall submit a classification Rules Verification Matrix, which shall be documented and be subject to the approval of the Beneficiary at the design stage.

Fluids (fuel, oil, grease, corrosion inhibitor, etc.) shall be shown on a documentation supplied by the contractor according to the manufacturer's requirements. The standards for fluids such as API, SAE, and ACEA shall be clearly defined in the documentation allowing the Beneficiary to use any suitable fluid with the CPBs in line with the manufacturer's requirements.

CPB OPERATION

Concept of Operations

CPB will be operated in coastal waters, shallow waters, river entrances, port, and coastal areas throughout the Turkey. Typical missions include Search and Rescue (SAR), Patrol, Diving and Port, Waterways, Coastal Security (PWCS), and Maritime Law Enforcement (MLE).

When used as a SAR platform, the CPB is expected to execute standard search patterns for vessels or persons in the water utilizing installed electronic systems and crew lookouts. CPB shall have a hydraulic rescue platform at aft with the capability to retrieve a person horizontally at normal operating load conditions.

Operating Conditions

CPB employment can occur at any time day or night, and will be operated high seas, in river entrance from sea side, bays, shores, and other waters subject to the jurisdiction of the Beneficiary. CPB will operate in both salt and fresh water. The river or sea bottom type may have sand, mud or pebbles etc.

ABBREVIATIONS

AC	Alternating current
ACEA	European Automobile Manufacturers Association
AIS	Automatic Identification System
API	American Petroleum Institute
BV	Bureau Veritas
CCTV	Closed-circuit television
CE	Conformité Européenne
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
CPB	Coastal Patrol Boat consisting all necessary devices, equipment and systems in order to provide an efficient task.
DC	Direct Current
DIN	Deutsches Institut für Normung
DSC	Digital Selective Call
EBL	Electronic Bearing Line
ECDIS	Electronic Chart Display and Information System

EMI	Electromagnetic Interference
EPIRB	Emergency Position Indicating Radio Beacon
EPLA	Electric Power Load Analysis
Genset	Generator set
GLONASS	Global Navigation Satellite System
GPS	Global Positioning System
HVAC	Heating, Ventilating and Air Conditioning
HAT	Harbour Acceptance Test
IACS	International Association of Classification Society
IEC	International Electrotechnical Commission
IMO	International Maritime Organization
IP	Ingress Protection
ISO	International Organization for Standardization
ITU	International Telecommunication Union
Kg	Kilogram

Knot	Speed unit: Nautical Miles/Hour 1 nautical mile = 1852 meters
KNRM	Koninklijke Nederlandse Redding Maatschappij (Royal Netherlands Sea Rescue Institution)
LED	Light Emitting Diode
LOA	Length Overall
MARPA	Mini-automatic radar plotting aid
MARPOL	International Convention for the Prevention of Pollution from Ships
MFD	Multifunction Display System
MLE	Maritime Law Enforcement
mm	Millimetre
NMEA	National Marine Electronics Association
NVR	Network Video Recorder
OEM	Original Equipment Manufacturer
PMS	Power Management System

PPE	Personal Protective Equipment
PWCS	Port, Waterways, and Coastal Security
Radar	RADio Detection And Ranging
RAM	Random-access memory
RFI	Radio Frequency Interference
RNLI	Royal National Lifeboat Institution
SAE	former Society of Automotive Engineers
SAR	Search and Rescue
SART	Search and Rescue Transponder
SAT	Sea Acceptance Test
SD	Secure Digital,
SOLAS	Safety of life at sea
TSE	Türk Standardları Enstitüsü/Turkish Standards Institution
TUV	Technischer Überwachungsverein
USB	Universal Serial Bus
VDC	Volts of Direct Current

VDE	Verband der Elektrotechnik, Elektronik und Informationstechnik
VHF	Very High Frequency
VRM	Variable Range Marker
WHr	WattHour
WMO	World Meteorological Organization

2. GENERAL REQUIREMENTS

A. GENERAL PROVISIONS

1. All the equipment shall be provided complete with the necessary accessories and/or parts to ensure that the unit is capable of operating to the required technical and quality specifications immediately. All specifications listed within lot for each item are the minimum requirements. Any improvements on the specifications or additional features offered shall be clearly identified in the Tenderer's offer.
2. The type of supplied voltage in Turkey is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V \pm 20 V, 50 Hz \pm 0.5 Hz, or 380 V \pm 40 V, power supply and be suitable for direct connection to the standard power outlets in Turkey. The type of electrical outlets generally installed in Turkey is the type with 2 side mounted earthing poles (EUROPLUG). All plugs of all the supplied equipment will have to fit exactly.
3. All items supplied conforming to the necessary CE regulation / norm shall carry a suitable CE badge of conformity, permanently fixed to the machine, where applicable.
4. It shall be noted that whenever a specific name of a product is mentioned in the Technical Specifications, a sufficiently precise and fully intelligible description is not possible, and it has to be understood as that product or its equivalent.
5. Equipment which allows upgrading of capacities (except the power capacity) shall be provided in such a way that upgrades can be performed by installing additional capacity without discarding the already installed capacities.
6. All equipment shall furthermore comply with the state of the art concerning safe operation, energy efficiency and environmental safety, in line with the generic policies or the practical measures in use within the EU, namely within the scope of Product Safety, Energy Efficiency and Environment Management, as applying; tenderers are thus requested to state in their offers how do they address such issues by means of appropriate manufacturing or operation characteristics or instructions.
7. Tenderers shall indicate on their offers about specific provisions envisaged concerning safe packing and transportation as well as of labelling or external identification of equipment to be supplied, according to commonly accepted good practices considering the nature of the supplies.
8. Any specific standard referring to or suggesting a particular product or manufacturer, in particular to types, models and brand names are always to be understood as "or equivalent, or succeeding". Where equivalency shall be subject to technical evaluation, the respective documentation of equivalency, and - if appropriate - an assessment by an independent party shall be provided with the proposal.
9. When required by national and/or international regulations, all the costs relating to any permission, licensing, certification, testing, calibration or other documentation of the supplies shall be borne by the contractor.
10. All Boats shall be inspected and approved by an IACS member institution or Turkish Lloyd according to mentioned rules.

TRAINING

Training shall be structured as per the outline specified in Appendix A to Annex II+III – Training Proposal Form.

3. TECHNICAL SPECIFICATIONS

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.	Coastal Patrol Boat (CPB)			
1.1.	General			
1.1.1.	Unless otherwise specified, performance requirements shall be tested in normal operating load conditions in calm water. Calm water is defined as a sea state less than or equal to 1 (according to WMO code 3700) and wind less than 15 knots.			
1.1.2.	CPB shall be able to operate at sea state 4 (according to WMO code 3700) or at least 2 meters significant wave height with a speed of at least 20 knots. CPB shall be able to operate at sea state 1, 2 and 3 (according to WMO code 3700) with a speed of at least 35 knots. Model tests (resistance, sea-keeping) shall be performed in appropriate tank(s). If Contractor offers a proven CPB design (a boat that is used by Coast Guard of EU Countries or/and Rescue Organisations (KNRM, RNLI etc.) and is certificated/approved for resistance and sea-keeping performance (shall be confirmed by Beneficiary)), the model tests are not needed.			
1.1.3.	Specified maximum range requirements, as well as manoeuvring and sea keeping shall be met with the CPB operating with all required equipment and accessories installed as defined in normal operating load condition.			
1.1.4.	Steering/Maneuver/Propulsion System (including their control systems) shall provide redundancy.			
1.1.5.	The typical uninterrupted mission period shall be at least 8 hours.			
1.1.6.	Total personnel capacity shall be not less than 8 (3 crew + 5 extra), including passengers and crew.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.1.7.	Contractor shall provide and install all equipment/components/material in accordance with the requirements of this Technical Specifications, and in accordance with the equipment/component/material manufacturer's recommendations. In no case the installation/production/construction shall be in a manner that would void the OEM's warranties.			
1.2.	Manoeuvring and Sea Keeping			
1.2.1.	CPB shall be controllable at all speeds and headings (limitations could be applied, but must be shown on of polar diagrams and be approved by the Beneficiary) under all loading conditions at defined sea-states. Controllable operation shall constitute operation where the boat orientation, motions, and accelerations do not pose a hazard to the crew, passengers and the boat and which are not otherwise controllable by good seamanship and boat handling.			
1.2.2.	CPB shall be capable of performing emergency/crash stops by decelerating from maximum continuous speed to at least %10 of maximum continuous speed in a maximum of 4 x LOA. Emergency/crash stop procedure shall be explained in ship/boat info booklet.			
1.2.3.	CPB shall be capable of performing full turn at maximum continuous speed less than 6 x LOA radius.			
1.2.4.	The criteria for the sea keeping performance shall be targeted as NATO STANAG 4154 NAV (EDITION 3), "Common Procedures for Seakeeping in the Ship Design Process" Chapter 9, Table 9.1 (The operation type: "TAP: Transit and Patrol"). The values of sea keeping criteria shall be in between; RMS Pitch=0 to 4.5 degrees, RMS Roll=0 to 5 degrees, RMS Vertical Acceleration=0 to 0.5g, Maximum Acceleration=0 to 3.5g and Deck Wetness=0 to 30 per hour.			
1.3.	General Requirements for Design and Construction			
1.3.1.	General			
1.3.1.1.	CPB shall be of carbon fibre reinforced composite material and vacuum infusion construction process shall be applied.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.3.1.2.	<p>Classification requirements for High Speed Craft of IACS member institutions or Patrol Boat Rules of Turkish Lloyd shall be met. Following additional notations shall be applied:</p> <ul style="list-style-type: none"> a) Service restriction: The service area restriction of at least 20 nautical miles in winter conditions and at least 50 nautical miles in summer conditions, representing the maximum distance from nearest port b) Ship type: Patrol Boat (Coast Guard) c) Additional class notations: Unmanned Machinery Space d) Related to structural strength and integrity: Crafts with a target design life more than 20 years. 			
1.3.1.3.	<p>Classification notation (+IN5 K50 FRP PATROL BOAT HSDE (+) M R or 1A HSLC R2 Patrol ELT E0 or equivalent) shall be approved by the Beneficiary during the design process.</p>			
1.3.1.4.	<p>All ISO standards mentioned in this technical specifications can be neglected if the content of item covered under classification rules (IACS or Turkish Lloyd). It must be verified by the Classification Rules Verification Matrix, prepared by the Contractor, controlled by IACS or Turkish Lloyd and approved by the Beneficiary.</p>			
1.3.1.5.	<p>Unless otherwise specified, all material in cabin should have at least IP23 and all material outside the cabin should have at least IP67 protection standard. If the equipment is not waterproof, then it must be housed in and operable from an enclosure that meets this requirement.</p>			
1.3.2.	Principal Characteristics			
1.3.2.1.	Length overall: Shall be 9-11 meters.			
1.3.2.2.	Maximum draught: 1 meter at most.			
1.3.2.3.	Speed: CPB shall be capable of achieving at least 35 knots of max continuous speed in defined sea-states.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.3.2.4.	Propulsion: Two inboard diesel engines, two reduction gears and two water jets.			
1.3.2.5.	Maximum range: CPB shall have sufficient fuel capacity so that it can operate continuously for at least 160 nautical miles with economical (cruising) of at least 20 knots and at least 8 hours.			
1.3.2.6.	Towing capacity: Capable of towing sister vessels with at least 5 knots speed.			
1.3.3.	Arrangements			
1.3.3.1.	CPB shall have a rigid hull construction with the exception of possible spray and lifting strakes.			
1.3.3.2.	CPB shall eliminate or pad sharp edges, where applicable.			
1.3.3.3.	The arrangement of seating, electronics, and lighting shall maximize system functionality while minimizing crew fatigue. Walkways outboard of the crew space enclosure shall be a minimum of 0.3 meters without stepping on the fender and shall provide access to the bow and stern.			
1.3.3.4.	CPB shall have a crew space (closed cabin/wheelhouse).			
1.3.3.4.1.	Seating: The crew space shall include 4 shock mitigating seats. These seats shall have certificate/report of applicable ISO rules.			
1.3.3.4.2.	The crew space shall have deck space to accommodate one stretcher with its patient on and secured via permanent fixtures.			
1.3.3.4.3.	Controls: The crew space shall have a forward console that incorporates the required controls, navigation, and communication equipment for the safe and efficient operation of the CPB. One of the seats shall be designated for the coxswain and shall include engine, steering controls, communication and navigation equipment.			
1.3.3.4.4.	Overhead: The overhead of the crew space shall be a solid structure. Standing headroom inside the crew space shall not be less than 2 meters.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.3.3.4.5.	Front and Sides: At least the front and front-side windows shall have wipers and air defrosters.			
1.3.3.4.6.	Structure: The structure of the crew space shall be strong enough to support at least 3 crew members (at least 255 kgs in total) standing on the top.			
1.3.3.4.7.	Weather Protection: The crew space shall allow the crew to be protected from hot, cold, wet, and icy environments and to take advantage of the installed HVAC and heating systems.			
1.3.3.4.8.	Visibility (Lines of Sight): The crew space shall allow for maximum lines of sight for the crew in both seated and standing positions, including lines of sight when coming alongside larger vessels and structures, as well as lines of sight when in turns. Total loss of visibility in 360 degrees outside the boat from the conning station shall not be more than 60 degrees. The crew space shall not be subject to glare from external light sources up to 15 degrees above the horizontal plane.			
1.3.3.4.9.	Normal Egress: The crew space shall allow for the crew to quickly and easily access the exterior of the CPB.			
1.3.3.4.10.	Emergency Egress: Other than the main door the crew space shall have at least one emergency egress (Emergency egress shall be water proof if directly connected to the open air).			
1.3.3.4.11.	CPB shall be arranged to allow for recovery of people and objects from the water by means of hydraulic rescue platform at aft.			
1.3.4.	Service Life			
1.3.4.1.	CPB hull, deck, console, and enclosure shall be designed to have an expected service life of at least 20 years. During this time, the CPB is expected to be capable of operating at least 1000 hours per year. Engine rating shall be chosen such that;. Yearly operating hours defined here are an estimation, not a usage limitation. CPB possibly be stored uncovered in the seawater during service life.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.3.4.2.	The fender system shall be designed to have a service life of at least 10 years before requiring major overhaul or replacement.			
1.3.4.3.	The main engines shall be designed to have at least 10000 (ten thousand) hours of operation before requiring major repair, overhaul or replacement based on the projected 1000 hours of annual use. Annual usage defined here are an estimation, not a usage limitation.			
1.3.5.	Operating Environment			
1.3.5.1.	<p>CPB and all of its equipment shall be capable of operating continuously in the following combined environmental conditions:</p> <ul style="list-style-type: none"> • Temperatures: <ul style="list-style-type: none"> a. Outside Air (Dry Bulb): 50°C to -10°C b. Sea Water Temperature: 35°C to 4°C • Sea Conditions: Sea state 4 or at least 2 meters significant wave height. • Water Quality: CPB will operate in various types of waters. This water (fresh and sea water) is expected to include sand, mud, pebbles and sea grasses and possibly be aerated. 			
1.3.6.	General Requirements for Equipment, Machinery and Materials			
1.3.6.1.	To achieve ready replacement of parts, the selection of equipment, fittings, and fabrication methods shall be standard for all boats manufactured.			
1.4.	Access			
1.4.1.	Access to compartments containing equipment, machinery, or spare parts shall be provided such that it allows for removal of the item without disassembly. Access shall be arranged to be clear of piping, wire ways, ducts, and other obstructions.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.4.2.	Bilge areas are those that are below the static waterline in normal operating load condition. Bilge access points shall provide access to the lowest point of the bilge when the CPB rests in a level position. Access shall be provided to bilge areas to ensure that bilges can be checked for water content and completely dewatered and wiped clean of any residue. The crew shall be able to access bilges for inspection and damage control without the use of tools. Sealed voids in bilge areas could be provided and do not require routine access; however, these voids shall be provided with a means to check for water content, and access hatches for depot level maintenance.			
1.4.3.	Tools can be used to open access hatches for sealed voids.			
1.4.4.	Access to fuel tanks, hoses and fittings shall be provided for repair and maintenance without removing any permanent structural component.			
1.4.5.	Check points that require routine maintenance checks on a daily basis or underway, such as dipsticks, site glasses, gauges, and strainers, shall be located so that they are readily accessible to the crew.			
1.5.	Noise			
1.5.1.	Noise level in the wheelhouse should not be more than 80 decibels in any conditions.			
1.5.2.	The maximum sound pressure level of airborne sound generated during the passage of CPB shall not be more than 85 decibels in any conditions according to TS EN ISO 14509 or equivalent.			
1.6.	Welding			
1.6.1.	Procedure qualification, welder's qualification, and non-destructive test personnel qualification for all welders and welding inspectors shall be in accordance with the classification (IACS member institution or Turkish Lloyd) requirements.			
1.7.	Fasteners			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.7.1.	All fasteners shall be of corrosion resistant materials.			
1.7.2.	Dissimilar metals (and carbon fibre reinforced composite, if used) shall be isolated to prevent the formation of a couple or galvanic cell.			
1.7.3.	Fasteners shall not be threaded directly into aluminium alloys or composite materials. Backing plates, alloy 304 stainless steel Helicoil inserts, or pressed-in, galvanic compatible threaded inserts shall be used when direct threading is required.			
1.7.4.	Cadmium-plated parts and fasteners, including washers, shall not be used.			
1.7.5.	Where nuts will become inaccessible after construction of the CPB, nuts shall be captured to allow re-assembly and prevent backing off. Unless otherwise specified, self-locking nuts of plastic insert type or all-metal left-locking nuts of distorted type shall be provided to prevent loosening of bolts due to shock and vibration.			
1.7.6.	Fasteners in deck traffic areas shall be flush mounted to eliminate tripping hazards.			
1.8.	Reliability, Maintainability and Availability			
1.8.1.	Components requiring routine maintenance should be readily accessible and removable with hand tools wherever possible. Examples include changing/checking oil, fuel air filters, removable fuel tanks, and electronics.			
1.9.	Materials			
1.9.1.	General			
1.9.1.1.	All materials normally subjected to sunlight shall be resistant to degradation caused by ultraviolet radiation.			
1.9.1.2.	Aluminium alloy surfaces intended for contact with porous material shall be coated.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.9.1.3.	Joints and crevices where water could collect shall be sealed with bedding compound.			
1.9.1.4.	Pockets too large to be bedded shall be coated. Copper alloys shall not be attached to aluminium.			
1.9.1.5.	In order to minimize moisture from joints, joining surfaces between mechanically fastened metal components and between metals and laminates shall be protected by the use of bedding compound or structural adhesive, as applicable.			
1.9.1.6.	CPB shall have the structural strength of landing to the beach in emergency situations with speed limitations. To assure this, suitable hull material (carbon reinforcement) and thickness shall be selected.			
1.9.1.7.	Dissimilar materials shall be isolated to prevent the formation of a couple or galvanic cell.			
1.9.2.	Aluminium			
1.9.2.1.	Wherever aluminium is used or required, it shall be as follows: A marine type resistive to corrosion aluminium shall be used and aluminium shall have physical properties of at least 5083 H116.			
1.9.3.	Stainless steel			
1.9.3.1.	<p>Wherever stainless steel or corrosion resistant steel is used or required, it shall be as follows:</p> <ul style="list-style-type: none"> • Stainless steel 316L shall be used for welded fittings, couplings, etc. on the exterior of the vessel above and below the waterline of the hull that is exposed directly to sea water and for all applications on the weather decks unless stated elsewhere in this Specification. • If stainless steel is used, 316L shall also be used on all interior welded applications in sea water handling systems where direct exposure to sea water is possible. 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Stainless steel 316L shall be used in non-welded applications where direct contact with sea water or spray is possible. 			
1.9.4.	Carbon fibre reinforced composite			
1.9.4.1.	Carbon fibre reinforced composite that is used for the construction shall have physical properties of at least HT (High Tensile Strength) or HM (High Modulus) quality made of PAN (Polyrylonitrile). Carbon fibre reinforced composite shall be produced with vacuum infusion technic.			
1.9.4.2.	Contractor shall prove the properties of carbon fibre reinforced composite by using IACS institution or Turkish Lloyd material certificate.			
1.9.5.	Bedding Compounds			
1.9.5.1.	For aluminium surfaces, polysulfide and/or polyurethane sealants shall be used above and below the waterline. Where waterproof adhesive bonds are required, a polyurethane compound shall be used.			
1.9.6.	Prohibited Materials			
1.9.6.1.	Any prohibited material for health and environment listed in the appropriate documents (including, wood, mercury, lead paint, and cadmium-plated washers and fasteners) shall not be used in constructing the CPB.			
1.9.6.2.	Materials which contain asbestos and refractory fibre materials (also termed ceramic fibre and aluminium-silica material) shall not be used.			
1.10.	Stability			
1.10.1.	General			
1.10.1.1.	The boat shall be stable under all operating and loading conditions and shall meet the stability and buoyancy requirements of mentioned (items 1.3.1.3. and 1.3.1.4.) class rules.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.10.1.2.	The boat shall not trim down by the bow in all load conditions (empty and full load conditions). The boat shall not list more than 0.5 degree in the full load or normal operating load condition. Ballast shall not be used to achieve these requirements.			
1.10.1.3.	There shall be an active stabilisation system (interceptor blades). The system shall be used for having optimum trim at various speeds to achieve the optimum speed, and also for maneuvers.			
1.10.2.	Watertight Requirements			
1.10.2.1.	The hull, main deck and cabin shall be watertight.			
1.10.2.2.	Console shall be weather tight.			
1.11.	Hull and Deckhouse Structure			
1.11.1.	General			
1.11.1.1.	The structure is defined as the hull bottom, sides, fixed superstructure, and deck(s) including longitudinal stiffeners, keelson, girders, foundations, transverse frames, bulkheads, and transom.			
1.11.1.2.	CPB shall be free of voids or other spaces where water from rain or spray can be accumulated and trapped.			
1.11.1.3.	Deckhouse and console shall meet the requirements of TS EN ISO 11591 or equivalent, where applicable.			
1.11.1.4.	There shall not be any steps on main deck.			
1.11.1.5.	There shall be a walkway completely around the cabin (wheelhouse). The board (side) of the boat shall be higher than the main deck level and by this way it shall perform as railing. There shall be railings (handrail) on the stern half of the boat. There shall not be railings on the bow (fore) half of the boat.			
1.11.1.6.	There shall be a hatch and at least one extra windcatcher ventilation above the cabin for fresh air and extra daylight.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.11.2.	Workmanship			
1.11.2.1.	Structure shall be free from buckles, uneven sight edges, or other defects.			
1.11.2.2.	Joints shall be neatly and accurately made. Faying surfaces shall be free from gaps, hollows or warping.			
1.11.2.3.	Shims shall not be used to correct improper fits. All exposed sharp edges shall be dressed, ground, or radiused to avoid personnel injury.			
1.11.3.	Construction			
1.11.3.1.	Hull construction shall be in accordance with the High Speed Craft Rules of IACS member institutions or Patrol Boat Rules of Turkish Lloyd.			
1.11.3.2.	The structural details shall be designed to maintain continuity and minimize stress concentrations and hard spots. Abrupt changes in section are to be avoided.			
1.11.3.3.	Structure and fittings in way of the equipment shall be arranged to provide clearance for disassembling parts and components without dismantling other machinery, structure, or piping.			
1.11.3.4.	Welding, where available, shall be in accordance with the standards set forth by the following institutions CE, IACS, ISO, OEM, or Turkish Lloyd.			
1.11.4.	Rescue Platform			
1.11.4.1.	CPB shall be arranged to allow for recovery of people and objects from the water by means of hydraulic rescue platform at aft and shall have provisions to allow for the self-recovery of crew members from the water.			
1.11.4.2.	Dynamic load capacity must be at least 150 kgs. Static load capacity shall be at least 255 kgs.			
1.11.4.3.	The length of the rescue platform shall be at least 1,8 meters.			
1.11.4.4.	When it is not in use (closed position) the rescue platform shall not exceed the hull for not being damaged during manouvers.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.11.4.5.	Rescue Platform shall have step(s) on sides (at interior corners) for the easy boarding of the survivors.			
1.12.	Fender System			
1.12.1.	General			
1.12.1.1.	CPB shall be outfitted with a prominent fixed fender system with rub section which is attached, and shall protect the hull from impact while alongside piers and other boats. This fendering could be a foam collar or a heavy duty rub rail, or a hybrid of all.			
1.12.1.2.	The fendering system shall extend around the complete perimeter of the boat above the waterline; except the rescue platform.			
1.12.1.3.	The fendering shall be of a size and type that will minimize damage to the boat; constructed of durable materials which are highly resistant to puncture, tearing, and sunlight degradation. Fendering must be suitable for stepping on during repeated embarking and disembarking by boat crews.			
1.12.1.4.	The fendering shall not gain weight from water absorption.			
1.12.1.5.	Method of fender attachment to the hull shall be approved by beneficiary at the design stage during the implementation (before the fender attachment). This method shall be defined with respect to corrosion, long service life etc.			
1.12.1.6.	CPB shall have a prominent fender system capable of absorbing extreme impact load and protecting it from damage during alongside operations with another vessel. The fender system shall extend around the complete perimeter of the CPB except that the rescue platform need not be fitted with fender.			
1.12.2.	Removal and Replacement			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.12.2.1.	The fendering shall be attached to the hull in such a manner that it can be removed for repair or replacement. The fendering system shall be capable of being removed and replaced without any special or the contractor's unique tools or fixtures. The fendering system shall also be capable of undergoing minor repairs. Fender system shall be formed by replaceable parts.			
1.13.	Main Deck			
1.13.1.	The main deck shall be watertight and shall be self-bailing using non-return fittings such as "elephant trunks/socks" that allow rapid clearing of water taken aboard. All fittings on the main deck must be flush so as to prevent tripping.			
1.14.	Masts and Arches			
1.14.1.	CPB shall be provided with a mast (or arch, or combination) to support but not restricted to the required antennas, loud hailer, navigation and towing lights, at least 2 National Flag, and a law enforcement light. Mast, arch or combination of both shall be foldable/removable for disassembly, without harming cabling.			
1.15.	Propulsion System			
1.15.1.	General			
1.15.1.1.	Propulsion system, <ul style="list-style-type: none"> a. Shall perform sufficient operational functions with respect to defined maneuver, speed and cruising range values. b. Shall have at least the main engines with a Type Approval Certificate by an IACS member institution. c. Shall have the latest version of the model. 			
1.15.1.2.	The main control unit of the propulsion system shall be in cabin (wheelhouse/crew space)			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.15.1.3.	Propulsion System shall include monitoring and control system. The monitoring and control system shall have the data of pressure, temperature, speed/rpm and other operation functions.			
1.15.1.4.	Propulsion System shall have the ability of emergency stop/crash stop.			
1.15.1.5.	Propulsion System shall be controlled locally (directly from engines and/or water jets) instead of main control if needed.			
1.15.1.6.	Propulsion System shall include security system (alarm and automatic stop equipment).			
1.15.1.7.	For ease of operations and maintenance activities during the life cycle (at least 20 years) of the CPS, main engines shall have at least 10.000 hours main overhaul period.			
1.15.2.	Main Engines			
1.15.2.0.	Brand/Model Names of Main Engines:			
1.15.2.1.	Main engines shall be same brand and model. Each engines shall have 4-stroke, include liners, diesel fuelled and the action of the motional elements of engines shall be provided by gear sets instead of belt drives.			
1.15.2.2.	Main engines shall have independent and redundant control and alarm warning system(s). Main engines shall also have at least overspeed, temperature and oil pressure alarm and warning system.			
1.15.2.3.	Main engines and all related equipment shall be seawater-resistant.			
1.15.2.4.	Main engines start-up system shall be electrical (starter).			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.15.2.5.	Main engines shall have seawater cooling system and cooling system shall have thermostatic control.			
1.15.2.6.	Fuel line of each main engines shall have at least 1(one) separator filter and/or water extractor at a proper location and easily accessible.			
1.15.2.7.	Engines shall allow CPB to operate with maximum continuous speed for an uninterrupted period of at least 2 hours in 8 hour boat duty period.			
1.15.3.	Reduction gear			
1.15.3.0.	Brand/Model Names of Reduction gear:			
1.15.3.1.	Reduction gear shall have 3 positions. (forward, astern and neutral) Astern maneuver shall be done by waterjets.			
1.15.3.2.	Reduction gears shall also have ability for manual control.			
1.15.4.	Waterjets			
1.15.4.0.	Brand/Model Names of Waterjets:			
1.15.4.1.	All manuevers of CPB shall be provided by waterjets.			
1.15.4.2.	Optimized waterjet system shall have provided maximum efficiency for the speed range of CPB. There shall not be damage/erosion/deformation caused by cavitation at any speed.			
1.15.4.3.	Waterjets control shall be provided by the steer at the dashboard and there shall be monitoring system.			
1.15.4.4.	Control of each waterjets shall be provided by a set of throttle lever. Each throttle lever shall also control the speed of connected main engine.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.15.4.5.	There shall be a backup control system for main engines and waterjets at the dashboard besides item 1.15.4.4.			
1.15.4.6.	There shall be a solitary control equipment besides items 1.15.4.4. and 1.15.4.5. (mouse etc.) for redounding an easy and superior maneuver ability to CPB. This equipment shall control all engines and waterjets for the all maneuvers.			
1.15.4.7.	Waterjets shall be used at shallow water and sandy sea ground with respect to OEM's limitations.			
1.15.4.8.	There shall be grids at the sea water inlet of waterjets. These grids shall be a part of original product and shall be manufactured by OEM.			
1.16.	Propulsion Monitoring Systems			
1.16.1.	Instruments and Alarms			
1.16.1.1.	Contractor shall provide and install engine gauges and alarms according to OEM's requirements or equivalent.			
1.16.1.2.	All gauges (if there are any) shall be backlit with adjustable dimming (0-100%), suitable for night time operations. Gauges that cannot dim must have suitable translucent covers to facilitate night time operations.			
1.16.1.3.	There shall be audible alarms (high engine temperature, low lubrication oil pressure etc.) on dashboard. All alarms shall be set in accordance with OEM's requirements.			
1.16.1.4.	Above requirements can be met with a multi-function or total engine management propulsion monitoring system.			
1.17.	Fuel System			
1.17.1.	Fuel tank(s) shall meet the requirements of TS EN ISO 10088, TS EN ISO 21487 and TS EN ISO 11105 or equivalent.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.17.2.	Main engines, generator and diesel heater shall use the same fuel.			
1.17.3.	The fuel system, including filters, water separators, hoses and fittings, transfer pump shall comply with the requirements of OEM			
1.17.4.	Fuel tank(s) shall be sized to meet the range and requirements with usable fuel.			
1.17.5.	(Each) fuel tank shall have high and low level alarms and also visual level display(s) shall be mounted at the control console.			
1.17.6.	Fuel tank(s) shall be designed to be accessible and shall provide complete access to tanks and adjacent spaces for periodic inspection, maintenance			
1.17.7.	Fuel supply hoses shall be fitted with reusable end fittings.			
1.17.8.	Readily accessible valves must be provided wherein all fuel tanks can provide fuel for any engine. Fuel tanks shall be provided with fuel fillers. Each tank's at least one valve shall be closable remotely.			
1.17.9.	Each engine shall be provided with a separate stand-alone filter with water separator capability and replaceable filter element according to OEM's requirements.			
1.17.10.	There shall be a transfer pump to transfer fuel from CPB to shore facilities.			
1.18.	Electrical Power Generation and Distribution System			
1.18.1.	General			
1.18.1.1.	Main electrical power of CPB shall be provided in all conditions by means of alternators on the engines without support of emergency and backup sources (excluding HVAC, microwave oven, water heater, rectifier, 220V AC sockets).			
1.18.1.1.1.	When both engines are activated, at low speed or idling speed, the needed electrical power shall be provided by means of alternators without the support/activation of generator at least 8 hours (excluding exception at item 1.18.1.1.).			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.18.1.1.2.	When only one alternator activated, the needed electrical power shall be provided by means of the alternator without the support/activation of generator during the requested (shall be determined in design phase) time (excluding exception at item 1.18.1.1.).			
1.18.1.1.3.	At the end of the determined times mentioned at item 1.18.1.1.1. and 1.18.1.1.2., there shall be a 'low battery voltage' alarm warning system inside the cabin for service batteries.			
1.18.1.1.4.	CPB shall have a generator. The generator shall be activated when needed to use the exceptions at item 1.18.1.1. and/or when the alarm warning system mentioned at item 1.18.1.1.3. activated.			
1.18.1.1.4.1.	The generator capacity shall be sufficient to support all the systems of CPB.			
1.18.1.1.5.	The batteries shall have charged both by alternators and generator.			
1.18.1.1.6.	HVAC system shall be powered by generator, and diesel heater shall be powered by alternators.			
1.18.1.2.	There shall be at least 2 (two) USB electrical input and sufficient amount of lighter sockets at the proper locations in the cabin.			
1.18.1.3.	There shall be a load and power analysis of power generation, transformation and electric storage.			
1.18.1.4.	Electrical system of CPB shall be monitored, controlled and isolated locally at inside of the cabin.			
1.18.1.5.	There shall be at least 3 (three) battery groups. (Start/Service/Emergency etc)			
1.18.1.6.	Starboard main engine shall be started by means of starboard battery group and starboard battery group shall be charged by means of starboard engine alternator, generator and shore power supply. Port main engine shall be started by means of port battery group and port battery group shall be charged by means of port engine alternator, generator and shore power supply.			
1.18.1.6.1.	Starboard and port battery groups shall back up each other.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.18.1.6.2.	Start Battery Group shall have at least 1 (one) battery for each main engines.			
1.18.1.6.3.	Start Battery Groups shall start up the engines 6 (six) times in a row without charged.			
1.18.1.6.4.	There shall have an ability to charge the batteries at Start Battery Groups by means of main engines.			
1.18.1.7.	Service and Emergency Battery Group(s) shall support service group and shall support the needed systems/devices at least 4 (four) hours when generator and alternators are deactivated.			
1.18.1.7.1.	There shall be a system to charge the main engines and generator by means of Service and Emergency Battery Group(s) when needed.			
1.18.1.8.	Except the conditions mentioned at item 1.18.1.7. Communication Battery Group shall support VHF DSC Radio in accordance with set forth by classification rules (IACS or Turkish Lloyd).			
1.18.1.9.	There shall be active stabilization system and shall be supported by battery group(s).			
1.18.1.10.	There shall be an automatic electrical system that provides the alternators on the main engines (together or separately) to charge at least service, start and emergency batteries.			
1.18.1.11.	There shall be a connection to shore power supply.			
1.18.1.12.	The batteries shall have be powered by generator and shore power supply by means of rectifier.			
1.18.1.13.	All batteries shall be marine type, accordance with up to dated DIN 43539 (or equivalent) standard and be preferably gel type/lithium polymer.			
1.18.1.14.	There shall be stray voltage control lamb.			
1.18.1.15.	The distribution panel shall be easily reachable.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.18.1.16.	All systems supported by electricity shall be secured by proper breakers depending on voltage and current.			
1.18.1.17.	The electrical equipment shall operate simultaneously with electronics equipment without causing interference to any electronic equipment or to the compass.			
1.18.1.18.	CPB shall have an additional 10 % of available power above design at all load conditions and operating speeds.			
1.18.1.19.	A DC and AC distribution system shall be provided to power the boat service loads.			
1.18.1.20.	Main distribution panel shall be in cabin.			
1.18.1.21.	Electrical system shall meet the requirements of TS EN ISO 10133 or equivalent.			
1.18.1.22.	Electrical system shall have a device that detects electrical leakage within CPB.			
1.18.2.	Generator			
1.18.2.0.	Brand/Model Names of Generator:			
1.18.2.1.	CPB shall be equipped with a marine type generator.			
1.18.2.2.	Generator shall be used as a secondary power source for the electrical loads (can be primary source for the HVAC, microwave oven, water heater, rectifier, 220V AC sockets etc).			
1.18.2.3.	Generator shall be remotely started from the console.			
1.18.2.4.	Generator shall have a sound insulation or its compartment shall be sound insulated.			
1.18.2.5.	Generator shall be equipped with electrical starter.			
1.18.2.6.	Generator shall have gauges and alarms according to OEM's requirements.			
1.18.2.7.	Generator's voltage regulation tolerance shall be in conformity with electrical devices OEM's requirements.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.18.2.8.	Generator's installation shall comply with OEMs requirements.			
1.18.3.	Protective Devices for Electrical Circuits			
1.18.3.1.	The equipment protection shall be proper against environmental effects.			
1.18.3.2.	The protection class shall be at least IP23 inside of the cabin and shall be at least IP67 outside of the cabin in accordance with set forth by classification rules (IACS or Turkish Lloyd).			
1.18.3.3.	All sockets and electrical equipment shall have a protection cover or at least IP X4 ingress protection.			
1.18.3.4.	Electrical devices and systems shall be designed to protect people from stray voltage.			
1.18.3.5.	There shall be high voltage labels to warn people. There shall be 'Dikkat Yüksek Gerilim' warning labels where the current is over 42 Volts.			
1.18.3.6.	There shall be electrical protection for crew in accordance with set forth by classification rules (IACS or Turkish Lloyd).			
1.18.3.7.	Electrical distribution panels shall have isolations for protection.			
1.18.3.8.	Electrical motors shall have at least 'F' class isolation level.			
1.18.3.9.	Electrical motors shall have protection against overcurrent.			
1.18.3.10.	There shall be 'PG' type coupling that shall provide IP67/68 type protection at the connection side of motors between cables.			
1.18.3.11.	Distribution equipment and all units of circuits shall be protected against overcurrent and short-circuit currents.			
1.18.3.12.	Electrical circuits of electronic devices/systems shall have breakers to protect the devices/systems against rapid high voltage issue. If the devices/systems won't have breaker then there shall be proper solutions to protect the devices/systems against rapid high voltage issue.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.18.3.13.	Automatic breaker(s) used in distribution panel(s) shall meet the requirements of EN 60898-1 or VDE 0641/6.78 or DIN 5764 or equivalent.			
1.18.3.14.	Moulded case circuit breaker(s) used in distribution panel(s) shall meet the requirements of TS EN 60947-2 or equivalent or VDE 0660 or IEC Lighting system shall be in accordance with classification rules (IACS or Turkish Lloyd).			
1.18.3.15.	CPB shall have egress lighting to assist crew members with exiting the crew space. All exits shall be prominently identified.			
1.18.4.	Search Light			
1.18.4.0.	Brand/Model Names of Search Light:			
1.18.4.1.	Electrical remote controlled searchlight (at least 1000 hours lamp life) with a minimum of 1,000,000 candlepower (and also at least 1 candlepower lighting at 1000 meter distance)			
1.18.4.2.	Search light shall have no less than a 360 degree rotations.			
1.18.4.3.	Search light shall be marine type, focusable and watertight.			
1.18.4.4.	Remote control of search light shall be on console.			
1.18.5.	Deck Lights and Alongside Lights			
1.18.5.1.	CPB shall be equipped with at least 6 independently switched IP 67 (at least 1000 hours lamp life) LED flood lights to illuminate the fore and aft decks and alongside port and starboard.			
1.18.5.2.	CPB shall be equipped with IP 67 and LED type step lights for walkways on deck.			
1.18.5.3.	Rescue Platform shall have sufficient lighting (at least 1000 lumen) for night time operations.			
1.19.	Command, Control and Communication			
1.19.1.	General			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.19.1.1.	CPB shall have the controls and gauges in clear unobstructed sight of the operator, clearly identifiable, accessible by the coxswain while seated, operable in all weather conditions and situations that would require the CPB to get underway.			
1.19.2.	Electromagnetic (EMI) and Radio Frequency Interference (RFI) Reduction			
1.19.2.1.	EMI and RFI shall be minimized in accordance with equipment manufacturer's recommendations and should enable the operation of all electronic equipment (including the magnetic compass) simultaneously without disrupting operations.			
1.19.2.2.	MIL-STD-464C or equivalent shall be used for guidance to ensure that the effects of EMI do not hinder the overall operational effectiveness of the equipment and the boat's systems and to ensure that system components are not damaged.			
1.19.2.3.	The design and construction of the CPB must be done with respect to protect the personnel, fuels, and ordnance from the hazardous effects of electromagnetic radiation while the CPB is in use.			
1.19.2.4.	MIL-STD-1310H and NOTICE-1 or equivalent shall be used for guidance to ensure that the grounding, bonding, and shielding of equipment and cable shall meet the requirements of safety and electromagnetic compatibility.			
1.19.2.5.	All RF transmission lines and cables shall be electrically bonded and shall be routed within the CPB structure to protect against EMI. Cables that must be routed topside or in exposed locations shall be shielded, either by use of shielded cables or by use of single or multi-cable conduit, or both.			
1.20.	Requirements for Control Stations and Data Display Systems			
1.20.1.	General			
1.20.1.1.	CPB shall have all controls and gauges in sight of the operator, clearly identifiable, accessible and operable during daytime, night-time, and cold weather operations, and during aggressive boat manoeuvres.			
1.20.1.2.	All displays shall be dimmable from 0 to 100% for night operations.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.20.1.3.	A loop of excess cable shall be provided to allow efficient removal, disconnection, and reinstallation of the instruments, systems and displays including accessing the back of the associated items by turning the items over without disconnecting any conductors.			
1.20.1.4.	All penetrations for electronics control cables shall be separate from any penetrations containing power cables, and multi-cable transitions shall be utilized when more than one cable passes through a single penetration.			
1.20.1.5.	All penetrations for electronic cables shall be installed to preclude “penetration chafing” while in service.			
1.20.2.	Console			
1.20.2.1.	Efficient location of controls, displays, and equipment shall be in line with the ASTM F1166 or equivalent.			
1.20.2.2.	Console shall have vibration absorbers or similar precautions.			
1.20.2.3.	All displays that shall be mounted on the console at proper position to not to flash/reverberate at night-time and daytime operation conditions.			
1.20.2.4.	All lightings on the console shall be dimmable.			
1.20.2.5.	All the lightings, gauges and light buttons shall be at least IP67 protection standard in accordance with TS 3033 EN 60529 or equivalent.			
1.21.	Navigation Lights			
1.21.1.	Navigation lights shall be provided and installed with the TS EN ISO 16180 or equivalent for underway operations, anchored operations, and astern tows operations that are less than 200 meters in length and alongside tows according to COLREG and IMO.			
1.21.2.	Navigation lights protection class shall be at least IP67 in accordance with TS 3033 EN 60529 or equivalent.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.21.3.	DC, IP67, LED lighting shall be used for all navigational lighting. Control panel of navigational lighting shall be on console.			
1.22.	Navigation System			
1.22.1.	General			
1.22.1.1.	The navigation display shall be viewable from the coxswain seat location during all operations.			
1.22.1.2.	Updates of navigational software shall be provided by the contractor till the final acceptance of the last boat. S63 navigation maps shall be able to upgrade and load by user (Beneficiary).			
1.22.1.3.	All electronic navigation system shall have an extra free NMEA 0183 or NMEA 2000 port.			
1.22.1.4.	Electronic Navigation System shall consist of at least following systems/equipment listed below: <ul style="list-style-type: none"> • MFDs • Radar • GPS • AIS • Echo sounder • GPS Compass (GPS Gyro) 			
1.22.1.5.	Compatibility of at least, radar, MFD, GPS, echo sounder, and AIS shall be ensured.			
1.22.1.6.	Radar shall be able to compatible with S63 chart system.			
1.22.2.	Displays			
1.22.2.1.	Multi-Function Display (MFD)			
1.22.2.1.1.	There shall be at least 3 MFDs (2 x 15.6 inches, 1 x 12 inches).			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.22.2.1.2.	MFD's shall be waterproof (at least IPX6).			
1.22.2.1.3.	MFD's shall be controllable by using both touch screen and the keypad&joystick.			
1.22.2.1.4.	MFD's shall be able to display at least following data on the screen in the same or different windows: <ul style="list-style-type: none"> • Radar, • Chart plotter, • GPS position, • Speed, • Thermal/Night Vision, • CCTV, • AIS info, • Echo Sounder 			
1.22.2.1.5.	MFD's shall support at least NMEA 2000 and NMEA 0183 data protocols.			
1.22.2.1.6.	MFD's shall be able to record screen or window images.			
1.22.2.1.7.	MFD shall be able to: <ul style="list-style-type: none"> • Auto slew to chosen MARPA and AIS targets, • Auto slew to a Man Over Board alarm location, maintaining the Man Over Board position in view at all times during a rescue situation 			
1.22.2.1.8.	At least 2 main MFDs shall back-up each other.			
1.22.3.	Radar			
1.22.3.0.	Brand/Model Names of Radar:			
1.22.3.1.	Radar shall track at least 10 targets.			
1.22.3.2.	OEM's declaration of maximum range of the antenna shall be at least 24 nautical miles.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.22.3.3.	Radar shall track all targets smaller than 10 meters in all speeds. Contractor shall present a table for radar's detection capability for relatively small targets (target size & range) according to "IEC 62388 ed 1.0 (2007) Table-2 – Range of first detection in clutter-free conditions".			
1.22.3.4.	Radar antenna shall be radome type with a speed of 60 rpm.			
1.22.3.5.	Radar antenna modulator type shall be Solid-state.			
1.22.3.6.	Radar antenna shall be waterproof (at least IPX6).			
1.22.3.7.	Radar shall have MARPA capability.			
1.22.3.8.	Radar shall have at least 1 VRM (Variable Range Marker) and at least 1 EBL (Electronic Bearing Line).			
1.22.3.9.	Radar shall be able to process S63 navigational maps.			
1.22.3.10.	Radar screen (MFD) shall be HD and dimmable for night-time and daytime operations.			
1.22.4.	Global Positioning System (GPS)			
1.22.4.1.	GPS display and antenna shall be waterproof (at least IPX6)			
1.22.4.2.	GPS antenna shall be able to use both GPS and GLONASS positioning systems.			
1.22.4.3.	GPS shall have at least 12 channels.			
1.22.4.4.	GPS shall be integrated to radar and shall have plotter chart with the capacity of at least 100 waypoint			
1.22.4.5.	GPS antenna position accuracy shall be less than 20 meters (with 95% probability).			
1.22.4.6.	Time to first fix from cold start shall be less than 2 minutes			
1.22.4.7.	If used as a chart plotter, GPS shall have a SD card slot.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.22.4.8.	There shall be another heading sensor to send the heading info (when needed) to the radar instead of GPS.			
1.22.5.	Automatic Identification System (AIS)			
1.22.5.1.	AIS shall have both receive and transmit capability.			
1.22.5.2.	When needed, AIS module shall have the ability of stopping and starting transmit of own ship information by using MFD menus (Silence mode or equivalent).			
1.22.6.	Echo Sounder			
1.22.6.1.	Echo sounder shall be able to supply coloured images of the bottom and floating objects to the MFD's by displaying approximate location of the objects and bottom.			
1.22.6.2.	The depth transducer(s) shall be installed in a location that allows the system to correctly display depth at least economical speed and sea states within operating limits of the boat as set forth in appropriate section.			
1.22.6.3.	The depth transducer(s) shall be accessible for maintenance and replacement.			
1.22.6.4.	The depth transducer(s) shall be located to minimize susceptibility to physical damage due to grounding, debris impact, hoisting, and triling. Its installation position on the hull shall be clearly marked on the general arrangements drawing and hauling out or trailer loading drawing.			
1.22.6.5.	Echo sounder system shall have a depth range of at least 50 meters.			
1.22.6.6.	Echo sounder shall be integrated to radar.			
1.22.6.7.	Echo sounder transducer shall be at least IP68 and echo sounder shall be at least IP67 protection standards in accordance with TS 3033 EN 60529 or equivalent.			
1.22.7.	Thermal Camera			
1.22.7.0.	Brand/Model of Names Thermal Camera:			
1.22.7.1.	Thermal camera shall have following capabilities:			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Stabilization (Two axis), • Full pan, limited tilt and at least 4xzoom, • At least 640 x 480 high resolution format picture, • Auto Slew to targets, • Detection of small vessels from at least 3 nautical miles distance, • Detection of survivors from at least 1000 meters distance, • Including colourful day camera (30X ±%10 optical zoom). 			
1.22.8.	Emergency Position Indicating Radio Beacon (EPIRB)			
1.22.8.1.	CPB shall be equipped with an EPIRB.			
1.22.8.2.	EPIRB shall be equipped with a battery that is capable of running the EPIRB for at least 48 hours. EPIRB shall have an embedded GPS. EPIRB shall comply with IPX7 protection standard and SOLAS regulations.			
1.22.9.	Search and Rescue Transponder (SART)			
1.22.9.1.	CPB shall be equipped with a SART.			
1.22.9.2.	SART shall be buoyant and shall comply with IPX7 protection standard and SOLAS regulations.			
1.22.10.	Closed-Circuit Television (CCTV)			
1.22.10.1.	A CCTV system shall be installed to CPB.			
1.22.10.2.	CCTV system shall consist of exterior and interior cameras.			
1.22.10.3.	CPB shall be equipped with cameras for 360 degrees angle of horizontal vision. At least 1 camera shall be installed to machinery room and tank room (if any).			
1.22.10.4.	All cameras shall be the IP type with at least 1280 x 1024 resolution.			
1.22.10.5.	All cameras shall be watertight (at least IPX6).			
1.22.11.	Network Video Recorder (NVR)			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.22.11.1.	Video data shall be recorded to a separate unit (Network Video Recorder-NVR).			
1.22.11.2.	NVR disc drive shall be able to store at least past 10 days of at least radar, thermal camera and CCTV data.			
1.22.11.3.	Data stored by the NVR shall be available for downloading to data transfer media (USB, SD card, etc.)			
1.22.11.4.	NVR disc shall be solid state drive (SSD).			
1.22.11.5.	Camera videos shall be displayed on MFD.			
1.22.11.6.	CCTV system shall be able to run as a standalone system while CPB is in harbour and shore power is supplied.			
1.22.12.	Magnetic and GPS Compasses			
1.22.12.1.	A magnetic compass shall be installed on the console with background light and dimmer feature for night operations.			
1.22.12.2.	A GPS compass (GPS Gyro) shall be installed on boat to supply heading and position information.			
1.23.	Radio Systems			
1.23.1.	General			
1.23.1.1.	CPB shall be equipped with 2 separate radios: <ul style="list-style-type: none"> ○ A marine type DSC VHF radio provided by the contractor, ○ A secure and encrypted VHF radio. 			
1.23.1.2.	Each radio system shall operate independently from other radio system. Each radio system, including its dedicated antenna, shall not interfere with the other radio system.			
1.23.1.3.	There shall be an entertainment system in cabin including a music player (DVD/USB) and loudspeakers.			
1.23.2.	DSC VHF Radio			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.23.2.1.	Contractor is responsible for providing, installing and integrating all components of the marine type DSC VHF Radio.			
1.23.2.2.	DSC VHF Radio shall receive own ship position information from the Electronic Navigation system via GPS.			
1.23.2.3.	DSC Digital Distress Call information shall be displayed on the boat's MFD.			
1.23.2.4.	DSC VHF Radio shall have a dedicated water resistant (IPX6) speaker that is clearly audible during all operating conditions. It shall be clearly labelled "VHF-DSC."			
1.23.2.5.	DSC VHF Radio antenna shall be marine type, dipole ratchet mount.			
1.23.2.6.	Radio output power shall be switched between 1 and 25 watts.			
1.23.2.7.	Radio shall meet at least DSC class A requirements in accordance with ITU standards.			
1.23.2.8.	Radio shall be able to load VHF marine channels (defined in ITU -R appendix-18) and shall have at least 40 programmable special channel.			
1.23.3.	Secured VHF Radio			
1.23.3.1.	CPB shall be equipped with a secured VHF radio which is compatible with secured communication system.			
1.23.3.2.	Contractor shall assure assembly of antenna, speaker, handset, laptop to radio. Any connection cables, power cables sockets, connectors, adapters, radio settlement must be provided by contractor and the contractor must be complete for each device separately.			
1.23.3.3.	GPS system shall be available to connect to secured VHF radio.			
1.23.4.	Laptop			
1.23.4.1.	There shall be 2 laptops on CPB.			
1.23.4.2.	It shall have at least 3299 Passmark score.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.23.4.3.	RAM type shall be at least DDR4 and shall have at least 16 GB RAM.			
1.23.4.4.	Display shall have at least 15.4 inches resolution and must have 1920X1080 pixels resolution.			
1.23.4.5.	It shall have super multi DVD reader/writer optical driver.			
1.23.4.6.	It shall have at least one VGA or DVI input and HDMI display port.			
1.23.4.7.	It shall have at least 2 GB external or at least 2 GB internal graphic card.			
1.23.4.8.	Hard drive shall be SSD and its capacity must be at least 256 GB.			
1.23.4.9.	It shall have a docking station or similar functional socket (pin, or USB).			
1.23.4.10.	It shall have at least 2 USB port and 10/100/1000 Base T Ethernet (RJ-45) port.			
1.23.4.11.	It shall have SD card reader.			
1.23.4.12.	Each laptop shall be delivered with black case resistant to external conditions and impacts.			
1.23.4.13.	Operating system shall not require a license fee. The laptop shall support Windows 10 operating system or equivalent.			
1.23.4.14.	It shall have at least 4 cells or at least 41 WHr battery lithium ion or lithium polymer,			
1.23.4.15.	It shall have Energy Star certificate.			
1.24.	Horn and Law Enforcement Siren and Loudhailer			
1.24.1.	Contractor shall provide and install an electric horn and law enforcement siren and loudhailer.			
1.24.2.	Horn, law enforcement siren, loudhailer and law enforcement lights can be combined as a single unit.			
1.24.3.	Horn/law enforcement siren shall have 4 different type of sound and sound level shall be tuneable.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.24.4.	Horn, law enforcement siren, loudhailer shall be meet at least SAE J1849 standard.			
1.24.5.	Horn and Law Enforcement Siren lights shall be blue and red in colour, LED type, and shall be visible from minimum of 2 nautical miles.			
1.24.6.	Horn and Law Enforcement Siren shall be shielded such that it does not shine down on or illuminate crew.			
1.24.7.	Horn and Law Enforcement Siren shall be stainless and watertight.			
1.25.	Piping, Hose and Valve Requirements			
1.25.1.	Piping and hose shall be installed to allow access and avoid damage. Piping and hose shall be run as directly as possible with a minimum of bends and fittings. Piping shall be supported to prevent vibration.			
1.25.2.	No valves, joints, or fittings other than welded ones shall be installed in any inaccessible spaces.			
1.25.3.	Piping run through hull structure or bulkheads shall be supported by a “through penetration” support. Piping shall be “seamless” (i.e., bulkhead penetrations shall not form a common joint to make the pipe “fluid” tight) through all penetrations.			
1.26.	HVAC			
1.26.1.	General			
1.26.1.1.	CPB shall have an HVAC system consisting of, <ul style="list-style-type: none"> • An air conditioning unit capable of both heating and cooling, • A fuelled heater, • Ventilation blowers/fans. 			
1.26.1.2.	HVAC heating and cooling calculations shall be made at least according to TS EN ISO 7547 standard or equivalent.			
1.26.2.	Air Conditioning Unit			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.26.2.1.	Main purpose of the air conditioning unit is cooling. Heating capability of the unit could be restricted according to OEM's limitations or environmental conditions.			
1.26.3.	Fuelled Heater			
1.26.3.1.	Main purpose of the fuelled heater is backing up air conditioning unit in winter conditions. The heater shall use the same type of fuel with the main engines and the generator.			
1.26.4.	Ventilation Blowers/Fans			
1.26.4.1.	Ventilation blowers shall be used with or without the HVAC system.			
1.26.4.2.	CPB shall be provided with a HVAC capable of maintaining the crew space at a temperature between 18°C (in summer) and 22 °C (in winter).			
1.26.4.3.	The HVAC shall also provide a blower with adjustable air flow to electrical defrosters capable of clearing the windshield and the front side windows.			
1.26.4.4.	The HVAC system shall not leave any dead spaces without air movement in the crew space, and supplemental fans inside the space shall be provided if necessary to get adequate circulation.			
1.26.4.5.	Fans shall be provided with at least two speeds.			
1.26.4.6.	Vent openings shall be provided with deflectors or other means to exclude rainwater or spray.			
1.26.4.7.	Contractor shall provide permanently attached covers to close the vent(s) and fan(s) weather tight from the outside in case of inclement weather or to store or trailer the boat. All covers shall be provided with fastening means to secure them in both the open and closed position. Opening or closing the cover(s) shall be possible in less than five minutes, without tools, and without climbing onto the top of the crew space.			
1.26.4.8.	If provided with hinged covers, the hinges shall not be aft of the opening. Fabric or other soft covers shall not be used to meet this requirement.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.27.	Deck Drainage			
1.27.1.	Deck drainage and scuppers shall be sized and placed to meet the “quick draining” and class rules or TS EN ISO 11812 or equivalent Design Category C requirements.			
1.27.2.	A minimum of two scupper ports shall be provided for quick drainage of the aft deck, or an alternative solution shall be provided by the Contractor.			
1.27.3.	Scupper ports or alternatives shall be fitted/located with a means to ensure that water does not back flow onto the aft deck.			
1.28.	Bilge Drainage and Pumps			
1.28.1.	There shall be 3 waterproof compartments on boat which need to be drained by the system, the machinery room, tank room (under the cabin), and a forward space (for toilet and kitchen appliances etc). Each of them shall include 1 electrical and 1 manual bilge pumps.			
1.28.2.	Drainage shall be provided throughout the boat as required to prevent water pockets and to provide means to remove water from any compartments that do not drain to a low point in the hull.			
1.28.3.	A threaded drain plug shall be provided in the transom to drain the hull.			
1.28.4.	Bilge pumps (at least 1000 gallons per hour) is required in the lowest portion of the bilges that shall meet TS EN ISO 15083 or equivalent and TS EN ISO 8849 or equivalent standards and shall be installed to pump out any water that could accumulate in the bilge in all compartments under waterline.			
1.28.5.	The bilge pumps shall be piped so that it pumps directly overboard. A check valve shall be provided in the overboard piping. The bilge pumps shall be located so that it takes suction from the lowest point of the hull.			
1.28.6.	The bilge pumps shall have an integrated automatic control that activates the bilge pump when water is present in the bilge.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.28.7.	The electric bilge pumps control switch shall be located at the console. The switch shall provide for on/off and automatic operation. An indicator light that illuminates when the bilge pump is operating shall be provided at the console.			
1.28.8.	Bilge pumps shall be designed as accessible.			
1.28.9.	A bilge high level visual and audible alarm shall be provided in the alarm panel for each "unsealed" bilge in CPB that is not separated by a watertight bulkhead.			
1.28.10.	The high level sensor shall be installed in the lowest longitudinal drainage location in the bilge			
1.28.11.	There shall be at least 1 additional hand-operated bilge pump (at least 5 gallon per minute).			
1.29.	Fire Extinguishing System			
1.29.1.	CPB shall meet at least TS EN ISO 9094 or equivalent standard for firefighting.			
1.29.2.	CPB shall have self-activating, aerosol type, fixed fire-fighting systems in the tank room and machine room. The activation control of these devices/systems shall be in the cabin. Tank room and machine room fire-fighting systems shall be controlled separately and control panels shall record at least activation time.			
1.29.3.	Proper heat, smoke, flame detectors and its alarm shall be provided at least for tank room, machine room and cabin. And fire alarm panel shall record at least activation time.			
1.29.4.	CPB shall be equipped with at least 3 portable fire extinguisher (1 dry powder extinguisher (6 kg) at cabin, 1 CO ₂ extinguisher (5 kg) at cabin and 1 foam extinguisher (9 l) that meets the TS 862-7 EN 3-7+A1 requirements.			
1.29.5.	Fire extinguishers shall be mounted so that they are secure, but readily accessible. Fire extinguishers shall not hinder crew movement and operation (i.e. recessed).			
1.30.	Anchor Handling Systems (Anchor, chain, shackle, rope, etc.)			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.30.1.	CPB shall have an anchoring system proper for using in defined sea states and wave heights. Anchoring process shall be done by crew without using a windlass. Anchoring shall not be a regular operation, the boat shall only be anchored for training and in emergency conditions. Anchoring system shall have a design to not to damage the fender system. Anchor shall have at least 5 meters chain.			
1.31.	Mooring, Towing, Tie Down and Lifting Fittings			
1.31.1.	General			
1.31.1.1.	All towing bitts, mooring bitts and chocks shall be free of sharp edges that might cause damage to mooring lines or personnel. The working surface of each bitt and chock shall be smooth to prevent chafing or otherwise damaging the lines.			
1.31.1.2.	Fore and aft mooring/towing bitts (at least 4 bitts) shall comply with the requirements class rules or TS EN ISO 15084 design category C (minimum) or equivalent.			
1.31.1.3.	All towing, mooring, tie down and lifting fittings and bitts shall be connected to main structure.			
1.31.1.4.	Synthetic cordage shall be polyamide in accordance with TS EN ISO 1140 or equivalent and polyester fibre in accordance with TS EN ISO 1141 or equivalent.			
1.31.1.5.	CPB shall have at least 6 silk content tie down ropes (at least 15 meters length and at least 15 mm in diameter) and 1 proper towing rope (at least 25 meters length and at least 24 mm in diameter). Ropes shall have eyes at the ends.			
1.31.2.	Mooring Fittings			
1.31.2.1.	CPB shall have 1 horned bit (crucifix) on the bow. It shall be suitable for being used when towed.			
1.31.2.2.	CPB shall have a minimum of 8 heavy duty cleats, 4 on each side, optimally placed to facilitate mooring and alongside towing evolutions. The cleats shall be of sized to accommodate towing/mooring line.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.31.2.3.	Foundations for deck fittings shall be provided as to permit towing astern, side towing and being towed operations.			
1.31.3.	Towing Fittings			
1.31.3.1.	There shall be aft towing bitts. The towing bitts shall be sized to accept one round turn and three figure eights of the towline.			
1.31.4.	Towline Reel			
1.31.4.1.	A towline reel shall be provided and outfitted with 50 meters of double braided nylon line with eyes spliced and lock stitched at both ends. The reel shall be installed in a location that is readily accessible to the towing bitt. One end of the line shall be attached to the reel using a light line or other means to provide a weak link.			
1.31.4.2.	The towline reel shall be provided with a removable crank handle and a locking mechanism that prevents it from freewheeling when not in use.			
1.31.4.3.	A towline reel cover shall be provided as part of the boat outfit.			
1.31.4.4.	The towline reel shall be coated with a high-build epoxy paint system or powder coating.			
1.31.5.	Tie Down Fittings			
1.31.5.1.	CPB shall be equipped with a bow eye and two transom eyes for securing the boat to a trailer or shipping cradle.			
1.31.5.2.	The bow eye shall be located on the stern below the fendering and above the waterline in the normal operating load condition in a position suitable for securing the CPB to a trailer or shipping cradle.			
1.31.5.3.	The stern eyes shall be located port and starboard on the transom with the eyes facing aft in a location suitable for use in securing the CPB to a trailer or shipping cradle. The stern eyes shall be above the waterline in the normal operating load condition.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.31.5.4.	Bow and stern eyes shall be sized that it can pass a 1 inch diameter double braided nylon line.			
1.31.6.	Lifting Fittings			
1.31.6.1.	CPB shall be provided with lifting fittings suitable for lifting the boat with a crane in normal operating load condition. At least 2 fittings shall be provided aft and at least 2 forward.			
1.31.7.	Lifting Straps			
1.31.7.1.	CPB shall be provided with one pair of lifting straps and fittings that are suitable for lifting the boat using the lifting fittings. The lifting fittings ultimate strength shall have a factor of safety of at least 2 on the weight of an CPB (normal operating load condition). Lifting straps shall be marked with their rated breaking strength and test date.			
1.32.	Outfit and Furnishings			
1.32.1.	CPB shall be delivered fully outfitted as specified. Contractor shall provide and install any necessary heavy duty, corrosion-resistant steel marine type stowage fittings, or fittings of other materials when approved by the beneficiary (before the installation) for stowing the items required by this Specification.			
1.32.2.	Contractor shall provide proper stowage fittings for CPB's staff's equipment, diving equipment (including at least six diving tube), documents and other necessary items.			
1.32.3.	Contractor shall provide at a minimum the outfit items listed below for each CPB, along with dedicated stowage for those items: <ul style="list-style-type: none"> • 1 kit of sacrificial anodes , • 2 fuses for each type used in electrical system • 1 proper marine grade cable of at least 20 meters. • 1 search light bulb • 1 fender repair kit 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • 8 cylindrical fenders. Diameter 27±5mm, Length 70±15mm. • 2 sphere fenders. • 9 life vests with manual flotation device and safety ropes for attaching safety rails, meeting requirements of at least TS EN ISO 12402 Grade 150 or equivalent. • 1 Hand held searchlight (at least IP67 protection level), 1 million candlepower (with at least 2 proper charging unit on deck (fore and aft)) • 2 floating aluminium telescoping boat hooks • 2 National Flag (at least 37,5x56,25 cm) • 1 stopwatch. • 1 portable/fixed anemometer • 2 Binoculars, 7 x 50 Marine Waterproof • 1 first aid kit for at least 11 persons. • 2 fully equipped throwaway flotation device (comply with SOLAS regulations) which is installed on a suitable place. • 1 stretcher (TS EN 1865-1+A1 “Main Stretcher” or equivalent) with suitable dimensions for cabin fixture • 1 life raft or life float with at least 8-10 person capacity • 1 cradle for dry-dock maintenance and repair activities • 1 boat clock • 1 thermometer • 1 hygrometer • 1 barometer • 2 clinometer (installed in cabin) • 1 boatswain’s pipe • 2 safety belts and ropes (adjustable to safety rail system and life vests) 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • 1 manual fuel transfer pump with removable hoses (at least 5 gallon per minute) • 1 manual bilge transfer pump with removable hoses (at least 5 gallon per minute) • 3 IP67 VHF hand radio with charging stations and handsets. • 1 pair of boat chocks • At least 3 keys for all stowing equipment 			
1.33.	Designation and Marking			
1.33.1.	Boat Identification Plate			
1.33.1.1.	Contractor shall provide and install a boat identification plate complying with the requirements in EN ISO 14945 or equivalent. The plate shall be located near the steering wheel towards the starboard side and need not be prominently visible from the coxswain's position. The plate shall include at a minimum: the contractor's name and address, the model number of the boat, a boat number (provided by the beneficiary), the year built, crew/passenger and cargo capacities.			
1.33.1.2.	The boat identification plate shall be made of metal with either engraved or raised moulded permanent letters.			
1.33.2.	Markings			
1.33.2.1.	CPB shall be marked port and starboard with the words "SAHİL GÜVENLİK" and "COAST GUARD" in block letters and shall be placed in such a way so as to be highly visible from the side of the boat. The lettering shall be black in colour and shall be centred approximately in the middle of the CPB, fore and aft. Painted on letters are not acceptable.			
1.33.2.2.	The boat number shall be marked to the forward bows.			
1.33.3.	Label Plates			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.33.3.1.	Each control, switch, gauge, and valve shall be provided with a durable, permanently attached label plate to indicate its function.			
1.33.3.2.	Each window, hatch, door etc. shall be provided with a durable, permanently attached label plate.			
1.33.3.3.	All signs and labels (excluding labelling that is done by OEM) shall be written in "Turkish".			
1.34.	Rails and Hand Holds			
1.34.1.	Rigid, fixed grab rails and hand holds shall be located as required for crew and passenger safety. At a minimum, rigid grab rails shall be fitted horizontally around the exterior front and sides of the enclosure as applicable.			
1.34.2.	A safety rail of Type D with at least 2 mobile anchor points as specified in TS EN 795:2012 or equivalent shall be installed on the exterior surface of CPB for attaching safety rope(s) while crew is working on the deck. Safety rail system shall withstand loads for 2 crew members (170 kg in total).			
1.35.	Windows			
1.35.1.	CPB shall be fitted with non-glare shatterproof windows suitable for the intended operational environment. Windows shall meet the requirements of EN ISO 12216 or equivalent.			
1.35.2.	Upper side of the forward facing windows shall point outward by means of a reverse inclination.			
1.35.3.	Each forward facing window shall be provided with defrost (preferably air) capability.			
1.35.4.	Each forward and forward side facing window shall be provided with a windshield wiper and a windshield washer system. These systems shall be easy for the operator to reach and operate.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.35.5.	At least 60% of each forward facing window must be covered by the wiper blade(s).The windshield wiper and washer system must be a heavy duty type resistant to corrosion and suitable for a salt water environment.			
1.35.6.	The windshield wiper shall be at least two-stage.			
1.35.7.	Fore aft and sides of the CPB shall have windows to maximize view angle.			
1.35.8.	Solar screens of the rolling type shall be fitted to all the crew space windows.			
1.36.	Colours, Coating and Appearance			
1.36.1.	The console shall be painted or coated to minimize glare from lights and electronics during night operations. Coatings or painting shall be scratch resistant.			
1.36.2.	Anti-slip paint shall be implemented to the main deck.			
1.36.3.	CPB's paint shall have at least 5 years of service life in normal condition.			
1.37.	Cathodic Protection			
1.37.1.	The hull shall be provided with adequate cathodic protection as required by appropriate standards.			
1.38.	Deck Floor Covering			
1.38.1.	General purpose non-skid material or paint shall be installed to aid sure footing.			
1.39.	Operator and Crew Seating			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.39.1.	CPB shall have 4 fixed shock mitigating seating (TS ISO 2631-1 and TS ISO 2631-1/A1 and TS ISO 2631-5 or equivalent) having at least 4 point safety belt with grab handle, head support/high back and foot rest. Seating shall provide comfortable support to the crew throughout the CPB's performance envelope. Calculation for the mass spring damper system of the seat versus operational sea state shall be presented by the contractor via OEM's documents. The seating shall be equipped with foot rests or be able to touch the deck. Seating shall facilitate access to all controls and gauges to accommodate crew members. The seats shall have the capacity to adjust the compression and dampening of the chair to account for sea-state changes and the weight of the individual sitting in the seat.			
1.39.2.	Shock mitigating seats that produce a resonant response or otherwise magnify a forcing frequency in the CPB's performance envelope range shall not be installed.			
1.39.3.	CPB shall ensure that motion from the shock mitigating seats does not interfere with or pose a safety risk to operators using the controls and displays.			
1.39.4.	Seat materials shall provide comfortable support of the seated person and shall be fabricated of durable marine grade materials. Materials shall be resistant to tear and puncturing, and shall not significantly degrade and fade under exposure to sunlight and saltwater.			
1.40.	Stowage			
1.40.1.	Storage for the outfit items listed in item 1.33.3 and any other items the contractor deems necessary for the safe operation of the CPB shall be provided. The stowage shall be fitted with watertight covers which can be quickly opened for ready access. Items requiring stowage shall utilize this space. All items, with the exception of the boat hook, require at a minimum weather tight storage.			
1.40.2.	All equipment on/in the CPB shall be fastened up to prevent vibration and noise.			
1.41.	Freshwater System			
1.41.1.	CPB shall have a fresh water system for toilet system and window washers (at least 100 liters).			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.42.	Toilet			
1.42.1.	CPB shall have a toilet that has to be connected to a drainage (tank of a minimum 50 litres) and fresh water system.			
1.42.2.	Toilet should have at least washbasin, closet, hand tower and toilet paper hanger.			
1.42.3.	Toilet shall have waste-holding tank and flush-water tank.			
1.42.4.	Toilet shall comply with the applicable standards and regulations (CE, TUV etc.).			
1.43.	Small Electrical Kitchen Appliances			
1.43.1.	Following small electrical appliances with CE marking shall be installed on CPB for the comfort of the crew: <ul style="list-style-type: none"> • A kettle for fresh water heating (at least 1,7 lt), • A microwave oven (at least 20 lt), • A mini refrigerator (at least 38 lt). 			