

TECHNICAL SPECIFICATION OF VESSEL TYPE - B (TCV) (SEA WORTHY)

Ser	Description	Reqr Tech Spec	Rmks
1.	Name of the Vessel	Vessel Type B (TCV) (Sea Worthy)	
2.	Name and Complete Address of the Local Agent	To be mentioned	
3.	Name and Complete Address of Manufacturer/Shipbuilder	To be mentioned	
4.	Name of complete Address of Principal	To be mentioned	
5.	Make & Model	To be mentioned	
6.	Origin of Shipyard	To be mentioned	
7.	Year of Production	Construction will not start, before the completion of contract and approval of the design and drawing	
8.	Stability (Safety State) of Vessel Type B (TCV)	Operable in Sea state 4, Ship Builder's Certificate to be submitted with details stability calculation based on IMO (International Maritime Organization) weather criteria	
9.	Classification	<p>a. The construction of the Vessel must be supervised and certified by a full member of IACS under the class notation (+hull, Machineries).</p> <p>b. Following certificate shall be issued by class/ the competent authority and shall be furnished with the Vessel:</p> <ol style="list-style-type: none"> (1) Stability and inclination book, class approved. (2) Classification certificate of hull, Safety (3) Construction certificate (Class) (4) Life saving certificate (class) (5) Safety plan and fire fighting plan (approved by class) (6) Certificate of classification (Class) (7) Builder certificate (Builder) (8) Load line certificate (Class) 	
10.	Purpose/Mission Profile	To carry the personnel's of an Infantry Coy /Artillery Battery/Engineer Field Company during training, operation and admin duties in the Inland water and Coastal areas	
11.	All Fitting Materials (If Not Mentioned Separately)	Group B Countries	
12.	<u>Principal Data</u>		
	a. Length	Minimum 55.0 m	
	b. Breadth	Minimum 10 m	
	c. Depth (from deck to bottom)	To be mentioned	
	d. <u>Draft</u>		
	(1) Draft without Load	To be mentioned	
	(2) Draft with Full Load	Maximum 2.5 m	
	(3) Air Draft Without Load)	Maximum 10m (with folded Mast)	
	e. Load Carrying Capacity	Minimum 150 Ton	
	f. Endurance	Minimum 15 days	
	g. Provision of Facilities	Troops Carrying capacity of 200 Persons	
	h. Displacement	To be mentioned as per Design	
	j. Gross Tonnage	To be mentioned with the Offer	
	k. Net Tonnage	To be mentioned with the Offer	
13.	<u>Hull Structure and Fittings</u>		
	a. Material	Use of steel plate shall be of shipbuilding grade-A IACS Certified to be provided	
	b. Shape of Hull	Corvette shape/V shape	

Ser	Description	Required Technical Specification	Rmks
	c. Type of Hull Used		
	(1) Steel plates and Sections	It should be as per approved design and drawing submitted by certified consultant firm and evaluated by selected/ nominated CS	
	(2) Hull Forgings and Coating Material		
	d. Frame Spacing		
	e. Welding	The vessel will be welded as per: a. Classifications requirement b. Surveyors satisfaction	
	f. No of Transverse in Hull	It should be as per approved design and drawing submitted by certified consultant and evaluated by selected/ nominated CS	
	g. No of Longitudinal in Hull		
	h. Test prior to the Delivery	Hull and other Fittings to be tested thoroughly as per CS requirement	
	j. Stability Booklet and Cert	To be prepared and supplied by builders as per CS requirement	
14.	Scantlings of Vessel		
	a. Plating		
	(1) Bottom Plate Thickness	Minimum 9mm	
	(2) Side Shell Plate Thickness	Minimum 8mm	
	(3) Deck Plate Thickness	Minimum 8mm	
	(4) Bulkhead Plate Thickness	Minimum 8mm	
	(5) Thickness of Bow Stiffener	Minimum 8mm	
	(6) Thickness of Longitudinal Bulkheads (BHD)	Minimum 8mm	
	(7) Thickness of Transverse Bulkheads (BHD)	Minimum 8mm	
	b. Dimensions of Longitudinal		
	(1) Deck Longitudinal	It should be as per approved design and drawing submitted by certified consultant and evaluated by selected/ nominated CS	
	(2) Bottom Longitudinal		
	(3) Side Longitudinal		
	(4) Bulkhead Stiffeners		
	c. Dimensions of Girders (Transverse)		
	(1) Deck Girder	It should be as per approved design and drawing submitted by certified consultant and evaluated by selected/ nominated CS	
	(2) Bottom Girder		
	d. Size & Dimension of Web Frame		
	(1) Deck Web Beam	It should be as per approved design and drawing submitted by certified consultant and evaluated by selected/ nominated CS	
	(2) Bottom Web Floor		
	(3) Side Web Frame		
	e. Size & Dimension of Pillars		
	(1) Verticals	It should be as per approved design and drawing submitted by certified consultant and evaluated by selected/ nominated CS	
	(2) Diagonals		
15.	River and Sea Trial	Test and trial of different systems to be carried out by the builder in presence of the buyer's representative at building yard. After satisfactory test and trial an acceptance certificate for different system to be signed by the builder and the buyer	

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16.	Transportation of the Vessel	On completion of construction and launching of the Vessel, supplier will arrange at its own responsibility and cost for transportation of the vessel from the yard/building site to owner's designated place and mooring it there	
17.	<u>Design and drawing details of the Vessel</u>		
	a. Name and complete address of the certified consulting firm for the design and drawings	To be mentioned	
	b. Capability of the consulting firm	Consulting firm will do the model testing.	
	c. Name of the CS for evaluation of the design and drawings	To be Mentioned form approved CS (Classification Society) List	
	d. Design requirements	(1) List of drawing and calculation to be submitted with 3D model including animation (2) Design of the vessel should have combat posture	
	e. Submission of design and drawing details	To be submitted within 30 days of receiving NOA (Notice of award)	
18.	<u>General Data on Accommodation</u>		
	a. 01x VIP Cabins	01x VIP cabins, in upper deck with required facilities (Cabins shall be equipped with single tier bunk, Bed side drawers, Locker, Reading table with lamp and Chair, Sofa with centre table, Dining table and Chair, Oscillating fan, Shoe rack, Mirror, Mattress, Bed covers and Pillows etc. Other necessary electronic appliances like TV & mini fridge etc)	
	b. Officers Cabin for 06xOffrs	04 Rooms (2x single room & 2x double room) with required facilities (Single tier bunk, Bed side drawers, Locker, Reading table with lamp and Chair, Oscillating fan, Shoe rack, Mirror, Mattress, Bed covers and Pillows etc)	
	c. JCOs Cabin for 08x JCOs	02 Rooms with required facilities (Single tier bunks, Double locker, Table with armless chairs, Shoe rack, Mirrors, Oscillating fans, Mattress, Bed cover and Pillows etc)	
	d. ORs Cabin for 176x Ors and 08x Crews	a. Required no of compartment as per approval of IACS and user b. 02xRooms each capable of accommodating 04x crews with required Facilities Two tier bunks, Shoe racks under the bunk, Double lockers, Mattress, Bed cover and Pillows, Mirrors, Oscillating fans etc	
	e. Officers Mess (Dining and TV Room)	01 Room, in Bridge Deck. Capable of accommodating 10x Officers with required facilities (Table, Chairs, Refrigerator, Microwave oven, 42" wall mounted LED TV etc)	
	f. JCOs and ORs Dining/Recreation Room	01xRoom capable of accommodating 50 x Persons for dining/recreation with required facilities (Tables, Chairs, Oscillating fans, 50" Wall mounted LED TV, Microwave oven etc)	
	g. Galley & Light Galley	02 Rooms (1x Galley for JCO & OR's and 1x Light galley for Officers) Capable of preparing foods required persons and equipped with required facilities (Double & single gas burner with gas cylinder and regulator, sinks with taps, 6 step rack, 6 step cabinet, exhaust fans, serving counter, utensils with chopping and cutting tools, refrigerator, deep freeze etc)	
	h. Sanitary and Bathing Facilities	(1) <u>VIP and Officers' attach Toilet.</u> 05 (03x attach toilet & 02x common toilet) rooms with required facilities (European type high Commode, Shower head, Coat hooks, Wash Basin, Mirror, Soap holder, Towel rail, Fresh water tap, Plug point, Water heater, 12" exhaust fan with louver etc) (2) <u>JCOs & Crews Common Toilet.</u> 01x Room, divided into 02xBath & 02x Toilets blocks with required facilities	

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		(European type pan, Fresh water tap, Wash basin with mirror, Shower head, Soap Holder, Towel Rail, Coat Hooks, 12" Exhaust fan with Louver etc)	
		(3) ORs Common Toilet. 03 Room divided into 08x Bath & 12x Toilets Blocks with required facilities	
		(Asian type pan, Fresh Water Tap, Shower Head, Soap Holder. Towel Rail, Coat Hooks. 12" Exhaust fan with Louver etc). In addition 10 x Basin (Outside of Bath for ORs)	
	j. Patient Cabin (MI Room)	01x Room with required facilities (1) Provisions should be made to accommodate/fix the various medical life saving medical devices (2) 02xFolding seats in the patient cabin which can also be used as a patient bed	
	k. Door and Windows	The Deck Houses to be provided with: (1) Water tight GRP doors and aluminum or GRP frame operable windows with net (2) There should be an arrangement to prevent ingress of rain water through the joint between the door/window frame and the bulkheads	
19.	Engine of the Vessel		
	a. General Data on Engine		
	(1) Make and Model	To be mentioned.	
	(2) Number of engine and type	2 x Marine Diesel Engine	
	(3) Country of Origin	Group A Countries	
	(4) Country of Manufacturer		
	(5) Country of Assembly		
	(6) Number of propulsion Unit	To be mentioned	
	(7) Horse Power with Rated rpm	To be mentioned, as per the maximum required speed (14 knot) considering Two (02) engine in operation at a time	
	(8) Horse Power & Speed curve	Certificate to be provided by the shipbuilder	
	(9) Power Weight Ratio	To be mentioned	
	(10) Number of Cylinders	Minimum 6 cylinder	
	(11) Engine Controls	Electrical/Mechanical combination	
	(12) Engine Starting	Electric/Air (pneumatic)	
	(13) Bore and Stroke	To be mentioned	
	(14) Displacement	To be mentioned	
	(15) Minimum Torque with rpm	To be mentioned	
	(16) Fuel Consumption Rate	To be mentioned	
	(17) Engine Operation	To be controllable from engine room and wheel house	
	(18) Engine Test Bench Certificate	During Inspection Engine Test Bench Report (for each model) which was prepared by manufacturer during production of engine at factory premises must be produced and submitted to the Inspection team (duly signed and stamped by the manufacturer). Other engines (mentioning engine number) of the same model must be certified confirming the engine Test Bench Report by the manufacturer (duly signed and stamped).	
	(19) Year of Production	Not before the year of contract	
	(20) Cooling System	Water/Liquid cooled	
	b. Gear Box/Transmission System		
	(1) Make & Model	To be mentioned.	
	(2) Country of Origin	Group A Countries	
	(3) Country of Manufacturer		
	(4) Clutch	To be capable to engage/disengage the main engines from engine room and wheel house	

Ser	Description	Required Technical Specification	Rmks
c.	<u>Propeller Sys</u>		
(1)	Make & Model	To be mentioned	
(2)	Country of Origin	Group A Countries	
(3)	Number of Blades	To be mentioned	
(4)	Diameter	To be mentioned	
(5)	Material	To be mentioned	
(6)	Number of propellers	To be mentioned	
(7)	Size of propeller	To be mentioned	
(8)	Length of shaft	To be mentioned	
(9)	Degree Rotation by Rudder	Minimum 180°	
(10)	Protective structure from ground or other obstacles	Skeg is to be fitted. Details to be mentioned in GA	
d.	<u>Steering and Rudder System</u>	a. Hydraulic electrical steering and rudder control equipment should be provided which shall be located at wheel house. b. Both joy stick and steering wheels are to be provided. c. In case of an emergency, the manual control will be located at the engine rooms with the rudder compartment. d. Country of origin- Group A Countries	
e.	<u>Fuel System</u>	Drawing to be provided	
(1)	Fuel storage tank	To be mentioned	
(2)	Fuel oil transfer lift pump	Minimum 02 HP, Group A Countries	
(3)	Fuel oil service tank	To be mentioned	
(4)	Primary filter and water separator	30 Micron, Group A Countries	
(5)	Mechanical fuel lift pump	Group A Countries	
(6)	Main engine fuel filter	5 Micron, Group A Countries	
(7)	Mechanical fuel injection pump	Group A Countries	
(8)	Fuel Pipe Line with Valve and Regulator	Details to be mentioned in GA	
(9)	Fuel Circulation and Pressure Monitoring Devices and Switches	Group A Countries	
(10)	Fuel Consumption Rate	To be mentioned	
(11)	Type of Fuel	Diesel	
f.	<u>Lubrication Sys</u>		
(1)	Oil Circulating Pump Units	Group A Countries	
(2)	Lubricant Distributors and Metering Units		
(3)	Monitoring devices & switches		
(4)	Control Units		
(5)	Valves		
(6)	Filters		
(7)	Lubrication Accessories, Fittings, Tubing etc		
g.	<u>Cooling Sys</u>	Drawing to be provided	
(1)	Type of Cooling	Water /Liquid cooled	
(2)	Cooling Water Pump, Valve, Regulator, Radiator, Water Jackets and Other Essential Equipment	All pumps and equipments are to be Group A Countries	

Ser	Description	Required Technical Specification	Rmks
20.	<u>Towing Facilities for the Vessel</u>		
	a. Towing from Bow and Stern Side	Details to be mentioned	
	b. Towing from Port and Starboard side	Details to be mentioned	
21.	<u>Deck Fittings of Vessel</u>		
	a. Deck Facilities and self Protection	a. Wheel house arrangement b. Signal Antenna, RADAR Tower, Navigation Light Mast etc c. 2x 12.7mm Anti-Aircraft (AAMG) Gun Post at bow and stern side d. All loaded condition the whole TCV should have a capacity of 360 degree firing arc around it, without any obstruction by using 2x12.7 mm AAMG. e. 4x7.62 mm LMG post in bridge deck & Weather deck should have sufficient arc of fire. The post should be compatible with the LMG used in owner's organization. f. All above required to be mentioned in GA, as per design and drawing	
	b. Dimensions and no of Watertight Manholes and Hatch	Number and Size to be mentioned in GA	
	c. Mooring Bollards	Required number of mooring bollards of 10" dia heavy pipe to be fitted on main deck. Details to be mentioned in GA as per design and drawing	
	d. Ladders and Gang Ways (in open deck and inside Close Deck)	Details to be mentioned in GA	
	e. Fender & Tire Fender	Minimum 20 pieces of tires with galvanized chain and shackle. Details to be mentioned in GA	
	f. <u>Boat Handling Crane/Derrick</u>		
	(1) Make & Model	To be mentioned	
	(2) Type	To be mentioned	
22.	<u>Machinery and Equipment Details</u>		
	<u>02x Diesel Generator</u>		
	a. <u>Generator</u>		
	(1) Make & Model	To be mentioned	
	(2) Type	Continuous operation (24 hours x 7 days) Marine grade to be mentioned	
	(3) Country of Origin and Manufacturer	Group A Countries	
	(4) Country of Assy	Group A Countries	
	(5) Year of Production	Not before the year of contract	
	(6) Over all Dimension	To be mentioned	
	(7) Cooling System	Details to be mentioned	
	(8) Over all Weight	To be mentioned	
	(9) Output Power	Prime and standby output to be mentioned as per design and load calculation	
	(10) Safety Features	a. The generator must have shutdown facility with sound warning of alarm system against over voltage, over current, over load low/high oil pressure, over temperature etc b. 1 x Switch board, 1x Synchronizing panel, 1x 400 V feeder panel, 1x 24V DC feeder panel, 220 V AC feeder and distribution panel (to be provided)	
	(11) Emergency Lighting System (24V DC)	To be Provided	
	b. <u>Engine</u>		
	(1) Make & Model	To be mentioned	
	(2) Country of Origin and Manufacturer	Group A Countries	
	(3) Year of Production	Not before the year of contract	
	(4) Fuel Tank capacity and Fuel consumption/hour	To be mentioned	
	(5) Output Power (KW/HP) with RPM	To be mentioned	
	(6) Over all Efficiency	To be mentioned	
	(7) Starting and Cooling System	To be mentioned	

Ser	Description	Required Technical Specification	Rmks
	c. <u>Alternator</u>		
	(1) Make & Model	To be mentioned	
	(2) Country of Origin and Manufacturer	Group A Countries	
	(3) Year of Production	Not before the year of contract	
	(4) Rated Prime output Power (KVA/KW) with RPM	To be mentioned	
	(5) Rated Output Voltage	220-230V AC (For Single Phase) 380-440 VAC (For three Phase) Specific Voltage to be mentioned	
	(6) Power factor	Not less than 0.8	
	(7) Over all Efficiency	To be mentioned	
	(8) Meter and Gauges/Display	Displaying volt, Ampere, Frequency, Fuel in Tank, Running/Operation hour, Temperature, KVA, KW, RPM, Power Factor etc. To be provided in digital system	
	(9) Complete set of Tool Kits	To be provided	
23.	<u>AC (Air Condition)</u>		
	a. <u>Central AC Plant</u>		
	(1) Make & Model	To be mentioned	
	(2) Country of Origin	Group A Countries	
	(3) Country of Manufacturer/Assembly	Group A Countries	
	b. <u>Backup AC</u>	Minimum 6x Split Type (Capacity: 1/1.5 Ton each)	
	(1) Make & Model	To be mentioned	
	(2) Country of Origin	Group A Countries	
	(3) Country of Manufacturer/Assy	Group A Countries	
24.	<u>All Pumps (Fresh Water, Ballast, Bilge, Fire Fighting etc):</u>		
	a. Make & Model	To be Mentioned	
	b. Country of Origin / Manufacturer	Group A Countries	
	c. Country of Assembly	Group A Countries	
	d. Delivery capacity with max suction and Delivery Head	To be mentioned as per design required	
	e. Required HP	Minimum 02 HP	
	f. Number of Pumps	As per design required	
	g. <u>Fire Extinguisher</u>		
	(1) Type	Foam Type, Powder, ABC, Liquid	
	(2) Country of Origin and Manufacturer	To be mentioned	
	h. S/W Hydrophone Pump with Tank	To be mentioned	
	j. F/W Hydrophone Pump with Tank	To be mentioned	
25.	<u>Towing Winch Machine and Anchor Winch Machine</u>		
	a. Make & Model	To be mentioned	
	b. Country of Origin	Group A Countries	
	c. Country of Assembly	Group A Countries	
	d. Pulling Capacity	To be mentioned	
	e. Length & Dia of Rope	Minimum 200m and 12mm	
	f. Source of Power	Generator/Shore sup	
	g. No of Winch Machine and Anchor Winch Machine	As per design required (Minimum 02 Each)	
26.	<u>Blower</u>		
	a. Make & Model	To be mentioned	
	b. Country of Origin and Manufacturer	To be mentioned	
	c. Capacity	To be mentioned	
27.	<u>Speed of the Vessel</u>		
	(1) Economic Speed	To be mentioned	
	(2) Max Speed	Minimum 16 Knot with full load	
	(3) Cruising Speed	Minimum 12 Knot	

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28.	Tank Capacity		
	a. Fresh Water Tank & Facility	(1) Minimum 25000 Liter (2) Reverse Osmosis (RO) plant capacity of 25 ton per day as per design reqr and cap approved by IACS. (3) Make, model and country of origin should be group A for RO Plant (4) Quality of raw water: Any subsurface river or seawater with minimum impurities ppm 35000. It should be incorporated with UV and active carbon filter. Minimum 3 years consumable chemical and spares to be provided with plant	
	b. Fuel Storage Tank	As per design requirement	
	c. Ballast Tank	To be mentioned as per required of design stability	
	d. Sewage Tank	Should comply with department of shipping (DOS) requirement	
29.	Solar Panel	Required number solar panel with all accessories to be provided based on the calculation (Capacity and output to be mentioned)	
30.	Navigation Equipment		
	a. Gyro Compass		
	(1) Make & Model	To be mentioned	
	(2) Country of Origin	Group A Countries	
	(3) Number	02 (Two)	
	b. Magnetic Compass		
	(1) Make & Model	To be mentioned	
	(2) Country of Origin	Group A Countries	
	(3) Number	01 (One)	
	c. Echo Sounder		
	(1) Make & Model	To be mentioned	
	(2) Country of Origin, Manufacturer & Assembly	Group A Countries	
	(3) Effective Range	To be mentioned (Minimum 0.25 meter)	
	(4) Number	01 (One)	
	(5) Resolution	Details to be mentioned	
	d. Forward Looking Echo Sounder		
	(1) Make & Model	To be mentioned.	
	(2) Country of Origin	Group A Countries	
	(3) Effective Range	To be mentioned.	
	(4) Number	01 (One) which to be placed at the wheel house	
	(5) Resolution	Details to be mentioned	
	e. GPS		
	(1) Make & Model	To be mentioned.	
	(2) Country of Origin	Group A Countries	
	(3) Position Accuracy	To be mentioned	
	(4) Speed Accuracy	To be mentioned	
	(5) Map and Memory and Global area coverage	To be specified	
	(6) Number	01 (One)	
	f. RADAR		
	(1) Type of Radar	To be mentioned	
	(2) Make & Model	To be mentioned	
	(3) Country of Origin, Manufacturer & Assembly	Group A Countries	
	(4) Effective Range for vessel/Boat, etc)	Minimum Nautical miles to be mentioned	
	(5) Number	01 (One)	
	(6) Frequency Band	To be mentioned	
	(7) Operating Frequency, Range & Band width	To be mentioned	
	(8) Display Unit	Details to be mentioned	
	(9) Transmitter Power	To be mentioned	
	(10) Antenna Type	To be mentioned, Elevation and Azimuth details to be mentioned	
	(11) Power Supply System	To be mentioned	

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	g. <u>Barometer</u>		
	(1) Make & Model	To be mentioned.	
	(2) Country of Origin	Group A Countries	
	(3) Number	01 (One)	
	h. <u>Anemometer</u>		
	(1) Make & Model	To be mentioned.	
	(2) Country of Origin	Group A Countries	
	(3) Number	01 (One)	
	j. <u>Inclinometer</u>		
	(1) Make & Model	To be mentioned.	
	(2) Country of Origin	Group A Countries	
	(3) Number	01 (One)	
	k. <u>Thermometer</u>		
	(1) Make & Model	To be mentioned.	
	(2) Country of Origin	Group A Countries	
	(3) Number	01 (One)	
31	<u>Navigational Light</u>		
	a. <u>Search Light, Anchor Light, Nuc Light etc</u>		
	(1) Make & Model	To be mentioned	
	(2) Country of Origin	To be mentioned	
	(3) Number	To be mentioned	
32.	Stanchion Arrangement (Foxel and Quarter Deck)	To be mentioned	
33.	Salinity (TDS) / Cathodic Protection of Hull	Necessary Arrangement to be Provided to withstand the salinity in the coastal areas of the Bay of Bengal	
34.	Anti Slip Surface	Deck to be built of marine type IACS Certified steel checkered plates, thickness to be mentioned	
35.	<u>Safety Required of Vessel</u>		
	a. <u>Fire Fighting System</u>		
	(1) No of Fire Pt	Minimum 05 numbers	
	(2) No of Fire Extinguisher	Minimum 02 per Point	
	(3) Length of Fire Hose Pipe	Minimum 30 m	
	(4) Fire Fighting Pump	Minimum 03 (02xportable and 01xfixed pump in engine room)	
	b. Life Boats	a. 04x life boats b. Capacity: Eight (08) persons/boat (with OBM of required HP to be mentioned) c. Country of origin: Group B Countries	
	c. No of Life Jackets & Buoys	Minimum 200 jackets & 50 buoys	
	d. No of Life Raft	a. 04x Life Raft b. Capacity : Twenty five (25) persons c. Country of Origin: Group B Country	
	e. Anchor Sys of Vessel	a. Minimum 02 anchor with requirement chain/cable fixed in bow and stern side b. Minimum weight 1000 kg or as per design c. Sustainable to sea state 4	
	f. Horn and Alarm and Ship Siren	To be provided	
36.	<u>Communication Equipment</u>		
	a. Specification of all Communication Equipment	All communication equipment should qualify the requirement of marine grade standard (IACS or relevant most appropriate authority standard) and their origin should be Group A Countries	
	b. <u>HF</u>	To be compatible with Military Standard Radio Set TR 2400 & PRC 2090, (Marine Grade Standard)	
	(1) Make & Model	To be mentioned	
	(2) Country of Origin	Group A Countries	
	(3) Communication Range	a. Base to base/vessel: All over Bangladesh. To be specified b. Vessel to vessel: To be mentioned	
	(4) Frequency Range	1.6-30MHz	

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	(5) Channel Spacing	10Hz	
	(6) ALE	Must be available	
	(7) Security Feature (Scrambling/Encryption, Freq Hopping, etc)- To be available	To be mentioned	
	(8) Number of Sets and Watt	02xSets minimum 100 watts	
	(9) Walkie Talkie Set	To be mentioned (To be compatible with owner)	
	(i) No of Handset	Minimum 05	
	(ii) Brand & Model	To be mentioned	
	(iii) Frequency & Watt	To be mentioned	
	c. VHF	To be compatible with owner's organization (Std Model: XV-3088, RF 13 and Thales TRC 9210)	
	(1) Make & Model	To be mentioned	
	(2) Country of Origin	Group-A Countries	
	(3) Communication Range (Requirement from Vessel to Vessel & Vessel to Base- To be mentioned)	Minimum 10 km (Line of Sight)	
	(4) Frequency Range	30-88 MHz	
	(5) Channel Spacing	To be mentioned	
	(6) Security Feature	To be available	
	(7) Number of Sets & Watt	03x Set Minimum 10-20 Watt	
	d. Intercom and PA Equipment	To be mentioned as per requirement	
37.	Electrical System		
	a. Shore Power Line	One x 3 core 400/1000 Volt shore supply cable of 400m length of appropriate capacity	
	b. Craft Power Line	3 Phase, 400volt / 220volt AC, 50 Hz line with standard size cable	
	c. Lights and Fans (Both Ceiling & Wall)	As per design requirement	
	d. Insulation	a. The roof ceiling and bulkheads of all accommodation to be of GRP panel which is to be insulated for thermal protection with 50 mm thick glass wool/polyurethane foam in between wall and ceiling. b. All the panel to be well finished.	
38.	Drawings and documents	Following Drawings/documents to be submitted with the offer: a. Preliminary general arrangement (GA) drawing with principal particulars of the vessel b. Preliminary accommodation layout including all stores, water/fuel tanks c. Preliminary mid-ship section drawing of the vessel d. Preliminary machinery and equipment layout e. Layout of upper deck and ladders arrangement f. Stores for the Vessel Type B (TCV) maintenance & safety gear g. Preliminary Location of Mooring Bollards, Fenders and Water tight manhole & Blowers (exhaust & inlet) h. Stability calculation as per inland shipping ordinance 2001/2005 j. Docking and undocking plan k. The shipbuilder/bidder will submit the final drawing to the purchaser (after notification of the award of the contract) for final approval	
39.	Gen Data on Other Facilities		
	a. Engine room	(1) To be located at the stern side with requirement space and standard facilities (2) Blower for sufficient ventilation for different closed compartments has to be provided (Monitor cabin, Fuel lines, Lubricant oil lines, Monitor board with meter and pressure gauge, Main electric switch board, Fuel storage tank, Lubricant oil storage tank, Ballast water tank etc).	
	b. Generator room	01x Room with required facilities	
	c. Ammo room	01x Room for ammunition with required shelves & racks	

Ser	Description	Required Technical Specification	Rmks
	d. Store Room		
	(1) For dry ration store	01x Room with required facilities	
	(2) Fresh ration store	01x Room with required facilities	
	(3) Life safety gear and accessories store	01x Room with required facilities	
40.	Painting		
	a. Hull outside	All steel plates of hull (bottom/side/deck plate) and all steel materials to be free from moisture, dust & grease before painting	
	b. Hull inside		
	c. Super structure		
	d. Paint brand	Marine paint brand suitable for sea worthy and to be approved by owner	
	e. Paint scheme	As per marine std recommended by CS	
	f. Colour	As per tender requirement	
41.	Publications		
	a. Brochure/ Catalogue	To be Provided as per requirement of EME Directorate	
	b. Tools & Accessories		
	c. Operating manuals		
42.	Modification of Drawing/ Documents	Modification can be made in consultation with owners' Opinion	
43.	Ambient Condition		
	a. Air temperature	-05 ⁰ C to +55 ⁰ C	
	b. River water temperature	-05 ⁰ C to +35 ⁰ C	
	c. Sea water temperature	-05 ⁰ C to +45 ⁰ C	
	d. Humidity	Up to 98%	
44.	ISO Certificate	Shipbuilder must submit ISO Certificate	
	Notes: Following Information and documents are to be submitted along with the offer:		
	a. Detail working principle of all key equipment and machineries		
	b. Model validity for the major equipment used in VSL Type B (TCV) for minimum 10 years		
	c. Arrangement for training on operation and maintenance in country to be provided by the supplier using foreign/local experts. Operation, repair, maintenance and inventory control training will be provided by supplier at his own cost for the first set of crews and maintenance related personnel as per the requirement of user unit		
	d. Provision of supply of major spares for minimum 10 (ten) years		
	e. Provision of supply of fast and slow moving spares for minimum 10 (ten) years		
	f. Owner's Operational Manual for all the equipment, list of spares, Special Service Tools (SST) and Special Service Material (SSM) to be mentioned. Necessary repair manual for all the equipment and updated spare parts' catalogue for all the equipment are to be supplied		
	g. 10% Fast Moving Spare Parts are to be supplied as per DGDP contract requirement		
	h. The supplier is to provide a certificate mentioning that all materials and equipment which will be used for the construction of the VSL Type B (TCV) will be new and without any defect		
	j. The Supplier has to provide the design details with calculation, approved by certified consultant which is to be evaluated by CS, IACS and submitted with 3D model including animation. Design should have a combat posture		
	k. Construction will not start before the submission of the approved detail design, drawing and calculation evaluated by CS, IACS follow by users/owners acceptance		
	l. The supplier should be a well reputed shipbuilder. In support of this last 5 years production details and turn over details are to be provided with the offer along with all supporting documents.		