



KHULNA SHIPYARD LIMITED

BANGLADESH NAVY, KHULNA.

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BABE (F) – 326/2019-2020/

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Dear Sir

INVITATION FOR QUOTATION OF 01 SHIP SET STEERING GEAR SYSTEM

1. Khulna Shipyard Limited (KSY) will procure 01 **Ship Set Steering Gear System** (as per the attached specification-04 pages).
2. Please send your offer on CFR Chittagong Sea Port within 06/01/2020 (1500 Hours) by e-mail or close envelop.
3. Insurance will be covered by this organization.
4. Payment should be made through L/C. 80% against shipping documents and rest 20% after satisfactory test trial and commissioning at KSY.
5. Shipment: 60 days from the opening date of L/C.
6. **1%** (one) Bid Bond of the total quoted CFR value must be submit with offer Bid Bond may be Bank Draft / Pay Order / Bank Guarantee in favour of Khulna Shipyard Limited, Khulna.
7. 10% Performance guarantee is to be submitted before Purchase Order.

Thanking you

Yours sincerely

SK. SHAH MOSHIUR RAHMAN
Manager Commercial
For Managing Director

**TECHNICAL SPECIFICATION OF STEERING GEAR SYSTEM FOR A FISHERIES
RESEARCH VESSEL (NB-766)**

1.0 **General.** The steering gear system is required for a fisheries research vessel suitable for operation in the river routes of Bangladesh.

Principal Particulars of the Fisheries Research Vessel:

a.	Length O.A.	:	25.00 meter.
b.	Breadth O.A.	:	6.00 meter.
c.	Depth	:	2.80 meter.
d.	Draught (Loaded)	:	1.40 meter.
e.	Propulsion Engine	:	250 HP x 2 Nos.
f.	Speed (at full load condition)	:	11.50 knot.
g.	Full load Displacement	:	92 M Ton (approx)

The equipments shall comply with the following Specifications:

A. Steering Gear System. The steering gear system for a twin screw vessel is to be supplied. The steering system will be complete set in all respect with all necessary accessories including steering column, main pump, telemotor, joy stick etc. All standard auxiliaries and accessories required for satisfactory installation and operation of the steering system, whether those are mentioned in the specification or not, are to be supplied. The Electro hydraulic steering gear system must have the following technical parameters but not limited to this.

Ser No.	Description of Item	Technical Parameter
1.	Name of Equipment	: Electric driven hydraulic steering gear system.
2.	Purpose	: To carry out the order from the bridge by moving the rudder in the desired direction.
3.	Quantity	: 01 ship set for twin rudder system.
4.	Capacity/Torque	: Minimum 1.5 Ton Meter for combined two rudders (each ship set)
5.	Country of Origin	: China
6.	Manufacturing country	: China
7.	Name of Manufacturer	: To be mentioned.
8.	Type	: Electro hydraulic type with manual emergency steering.
9.	Make	: To be mentioned
10.	Year of manufacture	: 2018 or later. The item should be brand new and original.
11.	Documents	: The supplier will provide 02 (two) copies of operation and maintenance manual, spare parts catalogue etc. in English with the system and 01 (one) copy of manual to be provided with the offer.
12.	Certificates	: The supplier have to provide manufacturer's workshop test certificate, product quality certificate, warranty certificate etc.
13.	Motor details	: To be mentioned

14.	Spare parts	:	Manufacturer's recommended spare parts for three years trouble free operation are to be quoted separately with item wise price.
15.	Standard equipments and necessary accessories	:	The supplier have to supply manufacturer recommended all necessary and standard equipments/accessories which are needed for operation of the system, whether mentioned or not mentioned in this technical specification.

B. Technical Parameters of the steering Gear System:

1.	Electro Hydraulic steering gear system with manual emergency steering backup
2.	Main wheelhouse steering station with helm wheel
3.	Steering pump driven by electric motor.
4.	Rudder angle 35 degrees port and starboard for a total sweep of 70 degrees
5.	Use displacement type hydraulic pump for not more than 20 seconds time for hard over to hard over at maximum engine speed.
6.	Mechanical tie bar between rudders with both end connectors and fittings.
7.	Main Steering – Non-follow-up (NFU) steering lever.
8.	Emergency Steering–By operating Standby emergency manual helm pump.
9.	02 Pcs X Double Acting Steering Hydraulic Cylinders complete with Mounting Pad
10.	04 Pcs X High Pressure Ball Valves
11.	04 Pcs X Hydraulic Flexible Hoses for each Cylinder.
12.	02 Pcs X Rudder Tillers of 1inch Pilot Bore and 4 Tiller Pins with Necessary Accessories.
13.	02 Pcs X Hard over Cut off Limit Switches with brackets.
14.	02 Pcs X Tie Bar End connector with Spherical Bearings.
15.	02 Pcs X Stainless Steel Mechanical Rudder angle Indicator.
16.	01 Pc X Double Relief By-Pass Valve
17.	01 Pc X Hydraulic Power Unit With Two 3ph/380v/50hz Electric Motor, Oil Reservoir Mounted On Common Skid With Hydraulic Control Valve, DC 24V Directional Valve, Push Button, Local Control, Low Oil Level Sensor, Pressure Gauge and Standard Tank Accessories
18.	02 Pcs X Flexible Hoses For Hydraulic Power Unit
19.	01 Pc X Starter Box for Steering Gear
20.	01 X Wheel House Forward Control Panel With Audible Alarms, Comprising Test Button, Reset Button, Alarm Buzzer, Alarm Input-Output And Other Required Accessories
21.	01 pc X Non-Follow-Up Joystick Controller for Fwd Station
22.	01 Pc X Rudder Angle Indicator With Dimmer
23.	01 Pc X Rudder Follow-Up Unit
24.	01 Pc X Stainless Steel Linkage Rod for Follow-Up Unit
25.	01 Pc X Manual Helm Pump For wheel house and Steering Room, Emergency Hand Hydraulic Steering Control
26.	02 Pcs X Flexible Hoses for Helm Pump
27.	01 Pc X Stainless Steel Steering Wheel for Helm Pump
28.	02 Pcs X Emergency Operation Instruction Sheet
29.	02 Pcs X Installation/Service Manual
30.	01 Pc X Steering Wheel NFU Operation for Wheel House Remote Control.
31.	01 Pc X Solenoid Valve For Spare
32.	01 Pc X Manufacturer's Certificate
33.	02 pcs X Brass quadrant plate
34.	01 pc X Brass linkage for follow up unit
35.	Pipe clamps for pipe installation- as required
36.	Equal tee for pipe installation- as required
37.	Straight pipe connector - as required
38.	Bulk head union fittings - as required

39. Elbow for pipe connection - as required
40. Steering column
41. Oil storage tank
42. First filling hydraulic oil required for the whole system - as required
43. Union pipe joint fittings- as required.
44. Steering wheel required for the wheel house remote control
45. Solenoid Valve-as required.

- a. Rudder Stock diameter : 105 mm (Approx).
- b. Centre to centre distance of two Rudder stock : 2200 mm.
- c. Steering Position : Primary In Bridge (Wheel House) and manual emergency steering in Tiller Flat.

1.1 The steering system is to be supplied as complete set for satisfactory installation and operation including the following components:

- a. Hydraulic Cylinder including all components.
- b. Tiller arrangement with all necessary accessories.
- c. Hydraulic steel pipes and flexible hose pipes as required for the system for connection from steering gear room to the wheel house (Tiller flat to wheel house distance along the hydraulic steel pipe route is 22 meter approx).
- d. Electric Motor of supply voltage 380 V AC including starter and all other accessories.
- e. Electric motor pump combination consisted of all other required accessories and equipments.
- f. Tiller and Tie Rod (Connecting rod) for connecting the two rubber stock.

1.2 **Hydraulic Power Unit.** One hydraulic power unit mounted and tested complete with tank and other required accessories for proper functioning of the system.

1.3 **Alarm Panel.** One alarm panel comprising test button, reset button, alarm buzzer, alarm input-output and other required accessories.

1.4 **Rudder Angle Indicator.** One electronic rudder angle indicator system comprising of one indicator for mounting in the wheel house and one mechanical rudder angle indicator for tiller flat with other required accessories.

1.5 **Test trial and commissioning.** On completion of installation by Khulna Shipyard (KSY), test-trial will be carried out by KSY at river in presence of the supplier's representative(s). If any defect arises, the supplier will be held responsible for rectification/replacement of that item. KSY will provide logistic support and work force for test trial.

1.6 **Warranty of the supplied items.** 12 months warranty after completion of satisfactory test-trial and commissioning.


4/12/19

1.7 **Manual, Drawings and Documents.**

- a. One set of brochure/catalogue (in English) to be provided with the quotation.
- b. Installation drawing/diagram including hydraulic piping diagram is to be supplied.
- c. Operation and maintenance manual is to be supplied.

1.8 The bidder must ~~be~~ provide a detailed and complete item wise compliance statement of their quoted machinery in respect of the above technical specification with the offer.