

TENDER SPECIFICATION OF AIR CONDITIONING PLANT FOR BNS DHANSIRI

1. **Name of the Equipment.** Air Conditioning Plant (Marine type).
2. **Purpose.** The Air Conditioning Plant will be installed onboard the Bangladesh Navy ship DHANSIRI, replacing the old Air Conditioning Plant. The Air Conditioning Plant should be capable of cooling the intended office, accommodation, magazine, and other working spaces by supplying air. The Air Conditioning Plant is to provide conditioned air with the provision of an automatic temperature and humidity control system within specific limits inside the designated spaces.
3. **Quantity.** 01 (One) in number plant (02 x Compressor, 01 x Condenser, 01 x Evaporator, 02 x AC cooling pump).
4. **Manufacturer, Principal Supplier & Local Supplier.** Names and full addresses are to be mentioned in the following table:

Ser	Description	Remarks
a.	Manufacturer	To be mentioned.
b.	Local Agent	To be mentioned.
c.	Principal Supplier	To be mentioned.

5. **Year of Manufacture.** 2024 or later. The item should be brand new and original.
6. **Country of Origin.** To be mentioned for overall plant (design and construction). However for compressor, condenser, evaporator and all pumps with motors, country of origin should be USA, UK, EU Countries. Canada, Australia, Japan, and Turkiye.
7. **Manufacturing Country** To be mentioned for overall plant (design and construction). However for compressor, condenser, evaporator and all pumps with motors, country of manufacturing should be USA, UK, EU Countries. Canada, Australia, Japan, and Turkiye.
8. **Certificate/ Document of Authentication.** The local supplier must provide the following original certificate(s)/ document(s) with the offer/quotation of items as regards to the genuineness of the source and item(s) to establish a chain of links from the original source to supply:
 - a. One certificate/ document from the manufacturer in favour of the supplier (in the case of the manufacturer as the direct source).
 - b. Two certificates/ documents, one from the manufacturer to the authorized agent and the other from the authorized agent to the supplier (in case the authorized agent is the immediate source).
 - c. Three certificates/ documents, first one by the manufacturer to the authorized agent, second one by the authorized agent to the sub-agent, and third one by the sub-agent to the supplier (in case of the sub-agent as immediate source). If the supplier cannot obtain the first certificate (by the manufacturer to an authorized agent), then relevant documents to prove the agency-ship of its claimed agent of the recognized manufacturer need to be produced.
9. **Design and Record of Sales.** The quoted AC Plant should be of new construction, have the latest production model, and have an up-to-date design incorporating state-of-the-art technology. The quotation will include a record of sales of the quoted model of the AC Plant with the names of the customers in the preceding three years.



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Standard. The AC Plant is to be designed and constructed fulfilling the requirements of any internationally recognized standardization organization/society for marine HVAC systems. The standards to which the quoted AC Plant complies are to be specified.

11. **Scope of Supply.** The scope of supply is to include the following:

- a. One AC Plant is to be supplied as per the technical specifications complete with compressor, condenser, evaporator, sea water pump with motor, control panel, refrigerant piping (with insulation) etc with all other standard accessories/ attachments, spare parts, documents and ready for immediate installation and operation (as per paragraph 16 and 17).
- b. Optional items (as per paragraph 18).
- c. Spare Parts (as per paragraph 19).
- d. Documents (as per paragraph 20).
- e. Quality Assurance Certificate (as per paragraph 21).
- f. Installation, Test, Trial, Commissioning and Acceptance (as per paragraph 22).
- g. Warranty and Guarantee (as per paragraph 23 and 24).

12. **Construction and Supply.** AC Plant and its equipment are to be constructed/ installed on the base frames in the designated spaces available on board the ship. It should be supplied complete and ready in all respects with all necessary equipment, items, material, and fittings (including appropriate grades of refrigerant and compressor oil), so that it can be put into immediate operation after installation onboard the ship without requiring any additional fittings equipment, items, etc.

13. **Available Power Supply Onboard.** All machinery/equipment of the AC Plant (compressors, seawater pumps, and associated motors) should be able to run with available power supply onboard ship 440V \pm 10%, 60 Hz, 3 Phases and up to 3.5 kW.

14. **Environmental Conditions.**

a.	Typical Outside Air		Remarks
Ser	Description		
(1)	Dry Bulb Temperature		Up to 45°C.
(2)	Relative Humidity		Up to 98%.
b.	Conditions Required Inside Air Conditioned Spaces (Desired Condition).		
(1)	Dry Bulb Temperature		22-25°C.
(2)	Relative Humidity		50%.
c.	Sea water temperature		Up to 35°C.
d.	Water condition		Salty and muddy.

15. **Maximum Allowable Space.** L x B x H = 1447 mm X 585 mm X 1651 mm for the complete plant.

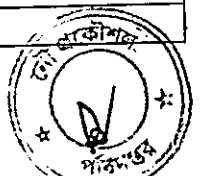
16. **Technical Specification.**

Ser	Description	
a.	General Specification	
(1)	Maker name & address	To be mentioned for overall plant (design & construction)



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	(2)	Qty	01 (One) in number AC plant (02 x Compressor, 01 x Condenser, 01 x Evaporator, 02 x AC cooling pump).
	(3)	Type/Model	To be mentioned.
	(4)	Capacity	Not less than 10.5 ton.
	(5)	Type of expansion	To be mentioned.
	(6)	Refrigerant used	To be mentioned.
	(7)	Refrigerant required per filling	To be mentioned.
b.	Compressor		
	(1)	Maker's name & address	To be mentioned
	(2)	Qty	02 in no (01 in operation and 01 standby).
	(3)	Capacity (Minimum)	10.5 ton each.
	(4)	Model/Type	To be mentioned.
	(5)	Power	440V, 60Hz, 3Phases.
	(6)	Lubricant system	To be mentioned.
c.	Condenser		
	(1)	Maker's name & address	To be mentioned.
	(2)	Qty	01 in no.
	(3)	Capacity	To be mentioned. The capacity should match with the overall capacity of the plant.
	(4)	Model/Type	To be mentioned.
	(5)	Cooling Media	Sea water.
d.	Evaporator		
	(1)	Maker's name & address	To be mentioned.
	(2)	Qty	01 in no.
	(3)	Capacity	To be mentioned. The capacity should match with the overall capacity of the plant.
	(4)	Model/Type	To be mentioned.
e.	AC Cooling Sea Water Pump with Motor		
	(1)	Maker's name & address	To be mentioned
	(2)	Qty	02 (01 in no operation and 01 standby)
	(3)	Model/Type	To be mentioned.
	(4)	Capacity	To be mentioned. The capacity should match with the overall capacity of the plant.
	(5)	Suction Port Dia	2 inch
	(6)	Discharge Port Dia	2 inch
	(7)	Suction Head	To be mentioned
	(8)	Discharge Head	To be mentioned
	(9)	Insulation Class for Motor	F
	(10)	Motor RPM	To be mentioned
	(11)	Motor Power	To be mentioned
f.	Overall weight of the plant		To be mentioned
g.	Gas Charging arrangement		To be mentioned
h.	Electrical Control System		
	(1)	Electrical Installations	The supplier will provide all the required electrical work related to the replacement of air conditioning system/plant onboard including the main electrical wiring, control wiring, main and local isolations, suitable containment isolations in accordance with the BN standard
	(2)	Operating Supply	440V, 60 Hz, 3 Phases.



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	(3)	Component of Electrical control cabinet	Following component of electrical control cabinet are to be provided with the offer: a. Incoming MCCB b. Control circuit transformer c. Magnetic Contactor with overload protector d. On/Off switch e. Indicating lights for state of operation f. Fault indicating lights g. Alarm with manual reset h. Thermostats
	(4)	Reset option	Manual
j.		Safety Device	
	(1)	HP cut out	To be mentioned
	(2)	LP cut out	To be mentioned
	(3)	High temperature auto stop	To be mentioned
	(4)	Low lub oil pressure	To be mentioned

17. **Standard Accessories.** Standard accessories must include all items and accessories essential to operating the AC Plant, whether mentioned in the specification or not. The price of standard accessories is to be included in the FOB value. However, an itemised price list of standard accessories is to be provided with the offer for reference value only.

18. **Optional Items.** The quotation should include a list of optional items (if any) required to operate the AC Plant. When evaluating the comparative prices of the suppliers, only the prices of selected items by BN will be added to the total price.

19. **Spare Parts.** A recommended list of spare parts required for 5 years of satisfactory operation must be provided, indicating the itemised price. Only the prices of selected items by BN will be added to the total price while evaluating the comparative prices of the suppliers.

20. **Documents.** 2 (two) sets of the following documents in English are to be supplied with the AC Plant (free of cost):

- a. Operation manual.
- b. Maintenance instruction/manual.
- c. Parts catalogue (for all supplied equipment/ items).
- d. Complete system drawings/ diagrams.
- e. Installation instructions.
- f. Circuit diagrams for the electric system.
- g. Certificate of manufacturing standards (by the manufacturer).
- h. Other documents/ drawings, if deemed necessary.

21. **Quality Assurance Certificate.** Quality Assurance Certificate regarding the associated equipment regarding its manufacturing and performance is to be provided at the time of delivery of the items.

22. **Installation, Test, Trial, Commissioning and Acceptance:**

- a. The Supplier will install the AC Plant as per the drawings and instructions supplied by the supplier/ manufacturer/ in the presence of the representative of the purchaser.
- b. On completion of installation of the supplied AC Plant onboard ship, test/ trials will be carried out by BN, during which the manufacturer's representative will be present.



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c. Manufacturer is to provide the services of at least one engineer for the supervision of installation, including test/ trial and commissioning. The manufacturer's engineer will be responsible for demonstrating and ensuring that the tests/ trials and commissioning of the AC Plant are satisfactory and fulfil the contract requirements. The duration of stay of the manufacturer's engineer/ engineers for test and trial is to be specified.

d. Cost of airfare, accommodation, food and other expenses of the manufacturer's engineer is to be borne by the supplier.

e. After satisfactory test, trial and commissioning, a report will be signed jointly by the representative of supplier and the representative of buyer and to be forwarded to CINS office.

23. **Warranty.** The principal/manufacturer will provide warranty for trouble-free operation for at least one year from the date of acceptance by the buyer. If the AC Plant remains non-operational during the warranty period due to any action pending by the supplier, the warranty will be extended for the same period. The warranty covers all parts and labour (including the cost of the service engineer) throughout the warranty period.

24. **Guarantee.** The manufacturer will guarantee the spare parts supply for at least 5 (five) years at a reasonable price. The annual increase in the price of spares should not be more than 5% of the price list provided with the quotation.

25. **Installation Material.** All necessary installation materials are to be supplied with the AC Plant.

26. **On Board Survey/ Site visit by the Bidder.** Prospective bidders may visit the ship before submitting quotation to clearly understand the available spaces for installation and requirements. Bidders will provide with associated drawing related with installation of the AC plant. Upon request by the bidder, necessary permission/security clearance related to visit will be arranged by BN.

27. **Shipment.**

a. The supplier will arrange the shipment of all items by sea to Chittagong Port, Bangladesh.

b. All items are to be delivered in sea-worthy packing to ensure safe transportation by sea.

c. All packages must have detailed packing notes showing their contents, and they must be marked with the consignee's name, address, and gross weight.

d. The supplier will arrange transportation of all supplied items from Chittagong port to the NSD Chattogram.

e. **Port of Shipment.** Any port of the manufacturing country. In case of shipment through any port of the manufacturer's authorised dealer, the relevant manufacturer's certificate is to be provided as a proof of the genuineness of the offered item.

28. **Delivery.**

a. The items are to be delivered within 9 (nine) months from the date of signing the contract to the following consignee:

The Commanding Officer, NSD Chattogram, New Mooring, Chattogram, Bangladesh

b. **Place of Delivery.** NSD Chattogram.

c. The supplier will carry the items from Chittagong Port to NSD Chattogram at the cost and risk of the supplier.



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29. **Validity of Offer.** The offer should remain valid ~~for~~ 180 days from the date of tender opening.
30. **Currency.** Foreign Currency.
31. **Terms of Payment.** L/C for the full purchase amount will be opened in favour of the principal supplier under the following payment terms:
- a. 80% of the total CFR value will be paid on delivery of the items described under the scope of supply and on production of necessary shipping documents.
 - b. The remaining 20% of the CFR value will be paid upon producing an 'Acceptance Certificate' after a satisfactory test and trial jointly carried out by the buyer's and supplier's representatives.
32. **Condition for Acceptance of Quotation.** Quotation has to have supporting documents (booklets, leaflets, catalogues, brochure, etc) having detailed particulars of the offered AC Plant. The quotation will not be accepted if detailed information regarding specifications, maker's books, and catalogue about the same model of the AC Plant quoted, spare parts, accessories, the scope of supply, etc, are not provided.
33. **Compliance.** A compliance statement fulfilling all the tender requirements is to be submitted for evaluation of the quotations. Stating mere 'Yes' or 'No' will not suffice, rather detail description/ information as required is to be given. An incomplete compliance statement may contribute to the cancellation of the offer. If any clause of this specification is not commensurate with the offered AC Plant, the deviation has to be spelled out clearly.
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