

TENDER SPECIFICATION OF MAIN FRIDGE PLANT FOR BNS MADHUMATI

1. **Name of the Equipment.** Main Fridge Plant (Marine type).
2. **Purpose.** 1 (One) Main Fridge Plant will be installed onboard Bangladesh Navy ship MADHUMATI replacing the old one. The new plant should be able to cool the designated meat, vegetable and condiment chamber.
3. **Quantity.** 1 (One).
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 over all plant (design and construction). However, for compressor, condenser, evaporator and all pumps with motors, the country of origin should be USA, UK, EU Countries, Canada, Australia, Japan and Turkiye.
7. **Manufacturing Country.** To be mentioned for over all plant (design and construction). However, for compressor, condenser, evaporator and all pumps with motors, the 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 regard to the genuinity 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 authorised agent and the other from the authorised agent to the supplier (in case the authorised agent is the immediate source).
 - c. Three certificates/ documents, first one by the manufacturer to the authorised agent, second one by the authorised 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 is unable to obtain the first certificate (by the manufacturer to an authorised agent), then relevant documents to prove the agency-ship of its claimed agent of the recognised manufacturer need to be produced.
9. **Design and Record of Sales.** The quoted Main Fridge Plant should be of new construction, latest production model and up to date design incorporating state of the art technology. Record of sales of the quoted model of the Main Fridge Plant with name of the customers in the preceding three years is to be included with the quotation.
10. **Standard.** The Main Fridge Plant is to be designed and constructed fulfilling the requirements of any internationally recognised standardisation organisation/society for marine HVAC system. The standards to which the quoted Main Fridge Plant comply with are to be specified.



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

- a. One Main Fridge Plant is to be supplied with compressor, condenser, evaporator, sea water pump with motor, control equipment, 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 15 and 16).
- b. Optional items (as per paragraph 17).
- c. Spare Parts (as per paragraph 18).
- d. Documents (as per paragraph 19).
- e. Quality Assurance Certificate (as per paragraph 20).
- f. Installation, Test, Trial, Commissioning and Acceptance (as per paragraph 21).
- g. Warranty and Guarantee (as per paragraph 22 and 23).

12. **Construction and Supply.** Main Fridge Plant and its equipment is to be constructed/ installed on the base frames available on board the ship. The Plant should be supplied complete and ready in all respect 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 without requiring any additional fittings, equipment, items etc.

13. **Available Power Supply Onboard.** All machinery/ equipments of the Fridge Plant (compressors, sea water pumps and associated motors) should be able to run with available power supply onboard ship (440V, 60 Hz, 3 Phases, and up to 5.0 kW).

14. **Environmental Conditions.**

Ser	Description	Remarks
a.	Sea water temperature	15°C - 40°C.
b.	Water condition	Salty and muddy.

15. **Technical Specification.**

Ser	Description		
a.	General Specification		
	(1)	Makers name and address	To be mentioned for overall plant (design & construction).
	(2)	Qty	1 (One).
	(3)	Type/Model	To be mentioned.
	(4)	Capacity	5 ton.
	(5)	Type of expansion	To be mentioned.
	(6)	Spaces available for installation	Not more than L-1100 mm x B-750 mm x H-1800 mm.
	(7)	Refrigerant used	To be mentioned.
	(8)	Refrigerant required per filling	To be mentioned.



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b.	Compressor		
	(1)	Maker's name and address	To be mentioned.
	(2)	Qty	02 (01 in no for operation and 01 will be kept standby).
	(3)	Capacity	5 ton each.
	(4)	Model/Type	To be mentioned.
	(5)	Operating Volt, phase, Hz	440V, 60 Hz, 3 Phases.
	(6)	Lubricant system	To be mentioned.
c.	Condenser		
	(1)	Maker's name and address	To be mentioned.
	(2)	Qty	To be mentioned.
	(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	To be mentioned.
	(3)	Capacity	To be mentioned. The capacity should match with the overall capacity of the plant.
(4)	Model/Type	To be mentioned.	
e.	Sea water pump		
	(1)	Maker's name & address	To be mentioned.
	(2)	Qty	02 in no (01 in no for operation and 01 as 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	50 mm.
	(6)	Discharge port dia	50 mm.
	(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.	Meat Chamber		
	(1)	Temperature (Lowest)	-20°C or Below.
(2)	Volume	5.5 m ³ .	
g.	Vegetable		
	(1)	Temperature (Lowest)	+4°C or Below.
(2)	Volume	3.5m ³ .	
h.	Condiment Chamber		
	(1)	Temperature (Lowest)	+4°C or Below.
(2)	Volume	2.5m ³ .	
j.	Charging arrangement		To be mentioned.



k.	Overall weight of the plant	To be mentioned.
	Electrical Control System	
(1)	Electrical Installations	The supplier will provide all the required electrical work related to the replacement of main fridge plant onboard including the main electrical wiring, control wiring, main and local isolations, suitable containment isolations in accordance with the BN standard.
(2)	Reset Option	Manual.
(3)	Operating Supply 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
l.	Safety Device	To be mentioned.
(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.

16. **Standard Accessories.** Standard accessories must include all items and accessories essential to operating the Main fridge 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.

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

18. **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.

19. **Documents.** 2 (two) sets of the following documents in English are to be supplied with the Main fridge 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.



20. **Quality Assurance Certificate.** Quality Assurance Certificate in respect of the associated equipment regarding its manufacturing and performance is to be provided at the time of delivery of the items.
21. **Installation, Test, Trial, Commissioning and Acceptance:**
- The purchaser will install the Fridge Plant as per the drawings and instructions supplied by the supplier/ manufacturer/ in presence of the representative of the supplier/manufacturer.
 - On completion of installation of the supplied Fridge Plant on board ship, test/ trials will be carried out by BN, during which the manufacturer's representative will be present.
 - 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 to demonstrate and ensure that the tests/ trials and commissioning of the Fridge Plant is satisfactory and fulfil the contract requirements. The duration of stay of the manufacturer's engineer/ engineers for test and trial is to be specified.
 - Cost of airfare, accommodation, food and other expenses of the manufacturer's engineer is to be borne by the supplier.
 - 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.
22. **Warranty.** The principal/manufacturer will provide warranty for trouble-free operation for at least one year from the date of acceptance by the buyer. During the warranty period, if the Main fridge Plant remains non-operational 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.
23. **Guarantee.** The manufacturer will guarantee the supply of the spare parts 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.
24. **Installation Material.** All necessary installation materials are to be supplied with the fridge plant.
25. **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 Fridge Plant. Upon request by the bidder, necessary permission/security clearance related to visit will be arranged by BN.
26. **Shipment.**
- The supplier will arrange the shipment of all items by sea to Chittagong Port, Bangladesh.
 - All items are to be delivered in sea-worthy packing to ensure safe transportation by sea.
 - All packages must have detailed packing notes showing their contents, and they must be marked with the consignee's name, address, and gross weight.
 - The supplier will arrange transportation of all supplied items from Chittagong port to the NSD Chattogram.
 - 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 proof of the genuineness of the offered item.



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27. **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.

28. **Validity of Offer.** The offer should remain valid till 180 days from the date of tender opening.

29. **Currency.** Foreign Currency.

30. **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 satisfactory test and trial jointly carried out by the buyer's and supplier's representatives.

31. **Condition for Acceptance of Quotation.** Quotation has to have supporting documents (booklets, leaflet, catalogue, brochure etc) having detailed particulars of the offered Fridge Plant. If detailed information regarding specifications, maker's books and catalogue about the same model of the Fridge Plant quoted, spare parts, accessories, scope of supply, etc are not provided, the quotation will not be accepted.

32. **Compliance.** A compliance statement fulfilling all the requirement of the tender is to be submitted for evaluation of the quotations. Stating mere 'Yes' or 'No' will not suffice, rather and detail description/ information as required is to be given. An incomplete compliance statement may attribute to cancellation of the offer. If any clause of this specification is not commensurate with the offered Fridge Plant, the deviation has to be spelt out clearly.