

**TECHNICAL SPECIFICATION OF ULTRA HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY (UHPLC)
INCLUDING ASSOCIATED ACCESSORIES**

1. **Name of the Item** : Ultra High-Performance Liquid Chromatography (UHPLC) including Associated Accessories
2. **Quantity** : UHPLC (Including Associated Accessories) - 01 Set.
3. **Year of Manufacture** : 2025 or later.
4. **Purpose** : The purposes are following:
 - a. Quality assurance test of ammunition, explosives and its components.
 - b. Assess the remaining shelf life of ammunition and explosives with their components.
 - c. Recommend extension of shelf Life of ammunition and explosives.
 - d. Testing the quality and performance of ammunition, explosives, pyrotechnics and determine the composition of its constituent.
 - e. Calorimetric testing
 - f. Chromatography measurement
 - g. Particle measurement
5. **Country of Origin** : USA, United Kingdom, Brazil, South Korea, Singapore, Serbia, Slovenia, Bosnia and Herzegovina, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Norway, Spain, Switzerland, Sweden, Turkiye and Australia.
6. **Manufacturing Country** : USA, United Kingdom, Brazil, South Korea, Singapore, Serbia, Slovenia, Bosnia and Herzegovina, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Norway, Spain, Switzerland, Sweden, Turkiye and Australia.
7. **Manufacturer** : Name & Full Address with telephone number and e-mail of Manufacturer to be mentioned.
 - a. **Supplier/Principle** : Name & Full Address with telephone number, Whatsapp number and e-mail of supplier/ Principle is to be mentioned.
 - b. **Local Agent** : Name & Full Address with telephone number, Whatsapp number and e-mail of local agent is to be mentioned
8. **Qualification of Bidder.**
 - a. Only an original Manufacturer (the Manufacturer) or an authorized dealer on their behalf, can submit quotation through their authorized agent (i.e. the Bidder) in Bangladesh. Offers from multiple manufactures might be allowed from such an authorized agent in Bangladesh.
 - b. **Certificate/Document of Authentication.** The Bidder must provide following original certificate(s)/ document(s) with the offer to authenticate genuineness of source and item(s) in order to establish with associated accessories from the original Manufacturer to the Bidder:
 - (1) 01(One) in no certificate/document by the Manufacturer in favor of the Bidder (in case of Manufacturer as the Direct Source).
 - (2) 02 (Two) in no certificates/documents, 1st one by the Manufacturer to Authorized Agent and 2nd one by the Authorized Agent to the Bidder (in case of Manufacturer's Authorized Agent/Seller as the Immediate Source).

(3) 03 (Three) in no certificates/documents, 1st one by the Manufacturer to Authorized Agent/Dealer, 2nd one by the Authorized Agent to Sub-Agent/Seller and 3rd one by the Sub-Agent/Seller to the Bidder (in case Sub-Agent/Seller as the Immediate Source).

c. **Export License.** Obtaining 'Export License' for the sale of the Ultra High-Performance Liquid Chromatography (UHPLC) System will be the responsibility of the Bidder (BN will provide 'End User Certificate'). The Bidder must mention this clearly in offer- except which the offer will be deemed incomplete and disqualified

9. **Scope of Supply.** The Ultra High-Performance Liquid Chromatography (UHPLC) System with standard testing equipment, tools & accessories, devices, and other necessary items/ equipment and system should be an integrated and scalable system. The scope of supply is as follows but not limited to:

- a. 01 x UHPLC (Including associated Accessories) as per para 12.
- b. Preparation of Associated Installation Facilities as per para 13.
- c. Training
- d. Spares (as option)
- e. Operating Manuals

10. **Environmental Condition.**

- a. Temperature : +5°C to +45°C.
- b. Relative Humidity : Up to 95% (None condensing).

11. **Ultra High - Performance Liquid Chromatography (UHPLC) System:**

Ser	Description	Specification
1.	Type	To be Mentioned.
2.	Brand	To be Mentioned.
3.	Model	To be Mentioned.
4.	Manufacturing Year	2025 or later (To be Mentioned).
5.	Classification Standard	To be Mentioned.
6.	Major Features	To be Mentioned.
General Characteristics		
7.	General Description	UHPLC is a technique used to separate a sample into its individual parts. This separation occurs based on the chemical or physical interaction of the sample with mobile and stationary phases. The features of liquid mobile phase which slowly filters down through the solid stationary phase bringing the separate component with it.
8.	Makeup of the System	(1) Ultra High Performance Liquid Chromatography (UHPLC) System. (2) Quaternary Pump (3) Auto Sampler. (4) Diode-Array Detector. (5) Thermostatic Column Compartment. (6) Water Purification System. or To be mentioned
9.	Method	To be mentioned.
10.	Technical feature	Following parameters may be suggested:
	a. Selected system data	LC/MSD/To be mentioned
	(1) Mass Range	To be Mentioned.
	(2) SIM Sensitivity	To be Mentioned (Positive or Negative).
	(3) Maximum Scan Speed	To be Mentioned
	(4) Polarity Resolution	To be Mentioned
	(6) Mass Accuracy	To be Mentioned
	(7) Spectral Accuracy	To be Mentioned
	(8) Dynamic Range	To be Mentioned
	(9) Control Speed	To be Mentioned
(10) Control System	To be Mentioned	

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(11) Supported Data Systems	(a) SIM Ion Selection (b) Scan Functions (c) Fragment or Voltage (d) Drying Gas Temperature (e) Capillary Voltage (Positive & Negative) (f) Dressing Gas Fallow
(12) Detector	Should be capable to identify all types of explosive and its composition.
(13) Vacuum System	One turbo-mole caller pump with one mechanical pump / To be Mentioned
b. Pump Principle	High Speed Pump / To be Mentioned
(1) Physical Specifications:	Following parameters may be suggested. If any alternative technical features, to be mentioned.
(a) Weight	To be Mentioned
(b) Dimension (height X width X depth)	To be Mentioned
(c) Power Supply	To be Mentioned
(d) Storing Temperature	4 to 55°C
(e) Power Supply	To be Mentioned
(f) Operating Temperature	To be Mentioned
(g) Relative Humidity	98%
(2) Performance specification:	
(a) Hydraulic System	To be Mentioned
(b) Flow Precision	To be Mentioned
(c) Pressure Range	To be Mentioned
(d) Number of Channels	At least 02
c. Detector:	Diode Array Detector/ To be Mentioned
(1) Detector Type	Should be capable to identify all types of explosive and its composition.
(2) Height Source	Should be capable to identify all types of explosive and its composition.
(3) Wave Length	Should be capable to identify all types of explosive and its composition.
d. Standard Flow Cell 10 mm, 1 SUL, 120 bar	
(1) Quantity	10 in nos/ Manufacturer Standard
e. Semi micro flow cell 5 UL, 6 mm, 120bar	
(1) Quantity	10 in nos/ Manufacturer Standard
f. Vial Sampler:	
(1) Physical Specification:	
(a) Storage Temperature	4° C to 55° C/To be mentioned
(b) Storage Humidity	98 %/To be mentioned
(c) Operating Temperature	4° C to 45° C/To be mentioned
(d) Operating Humidity	98 % max/To be mentioned
g. Performance Specification	To be mentioned.
h. Sample 200P-100 UL for max injections of 100UL at reduced pressure (600 bar):	
(1) - Quantity:	100/ Manufacturer Standard
j. Analytical Head 100 UL for use up to 600 bar systems pressure:	
(1) Quantity	30/ Manufacturer Standard
k. Agilent Infinity Lab sample Thermostat.	Provides sample temperature control in the range of 4° C up to 40 ° C/To be mentioned
l. Multi column Thermostat	
(1) Operating Principle	Duel/To be mentioned
(2) Temperature range	4° C up to 110° C/ To be mentioned

	(3) Temperature Accuracy	± 0.5 ^o C/To be mentioned
	(4) Maximum Column	24 column of 100 mm length/ To be mentioned
	(5) Heat up/ Cool-down time	5 min from ambient to 40 ° C 10 ^o C from 40 ^o C to 20 ^o C < 30 min from 25 ^o C to 100 ^o C solvent heat exchangers/ To be mentioned.
	(6) Valve Drive Option	02/ Manufacturer Standard
	m. Valve Drive for 0290 MCT	06/ Manufacturer Standard
	n. Quick Connect Heat Exchanger High Flow (3.0V)	50/ Manufacturer Standard
	o. Quick connect Heat Exchanger High Flow (3.0V)	06/ Manufacturer Standard
	p. Valve Head, 1300 bar	02/ Manufacturer Standard
	q. Valve Capillary Kit (.012 mm)	06/ Manufacturer Standard
	r. Big Universal Trap, 1/4i Fttgs, Nitrogen	50/ Manufacturer Standard
11.	Standard Solution	To be mentioned
12.	Chemicals for Sample Preparation	To be mentioned
13.	Training. Supplier has to be provided following trainings:	a. Installation and start-up of all equipment. b. Instrument design and measuring principles. c. Software structure and operation. d. Instrument operation. e. Instrument maintenance. f. Calibration procedures. g. Sample preparation techniques, prediction and verification of collected sample. h. Documentation of results.

12. **Preparation of Associated Installation Facilities.**

a. **Power Supply and Management System.** The Ultra High-Performance Liquid Chromatography (UHPLC) System should primarily run on commercial power (400±5% V, 50 Hz, 3 Phase). The bidder must provide Voltage Stabilizer to maintain a stable power supply. The system should also be capable of operating on generator power.

(1) **Uninterrupted Power Supply (UPS).** Online UPS(s) with sufficient capacity to run main system equipment and the ancillary equipment with a full load for at least **One hour** is to be provided at each site. The system must have the provision to take over automatically if there is a commercial power failure. The required quantity is as follows:

Description	Specification
Quantity	To be mentioned
Brand	To be mentioned
Model	To be mentioned
Country of Origin	To be mentioned
Country of Manufacture	To be mentioned
Capacity/ Rating	To be mentioned (To be determined by the bidder)
Backup Time	At least one hour or more (To be mentioned)
Power Supply	400V/220V, 50Hz, 3 Phase/1 Phase

(2) **Voltage Stabilizer.** Two (02) voltage stabilizers (1 x running and 1 x standby) with appropriate capacity are to be provided to ensure stable shore power supply. The national grid supply of Bangladesh is 400V, 50Hz, 3 Phase. The bidder is to mention the full specification along with brand/model, capacity and warranty period of offered voltage stabilizer.

b. **Any Other Equipment.** The bidder is to offer/suggest any other equipment's.

c. **Optional Equipment.** The price of the optional items are to be quoted separately as optional equipment.

13. **Ancillary Equipment.** Bidder should provide following Ancillary equipment's.

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- a. **Air Condition Facility.** The bidder is to provide 02 in numbers split type high quality, energy efficiency air conditioner(s) with appropriate capacity should be provided in Equipment and operation room. Bidder is to provide details specification along with brand/model, capacity and warranty period in the offer.
- b. **Earthing of the Equipment.** All electronic equipment should have proper earthing (less than 2 ohm) and bonding system.
14. **Standard Accessories.** Standard accessories must include every item and accessories, which are essential to make the system operational, whether those are mentioned in the specification or not. A list of such items/ accessories is to be provide with the quotation.
15. **Optional Accessories.** Optional accessories (if any) are to be quote separately mentioning their usages.
16. **Spares.** Original Equipment Manufacturer (OEM) recommended fast moving spares for 03 years trouble free operation are to be quoted showing item wise price as an optional. The offered list will be considered for evaluation.
17. **Pre-Shipment Inspection (PSI)**
- a. Pre-shipment Inspection (PSI) will be carried out by a team of minimum 02 (two) BN officers for a duration of minimum 05 (five) days excluding journey period, at the buyer's expense (including international air ticket, food and accommodation). The supplier should inform the date of PSI schedule at least 08 (eight) weeks prior to the date of commencement of the said inspection. Pre-shipment Inspection (PSI) criteria for the items will be determine by the buyer after forwarding the PSI schedule and proposed criteria by the supplier.
- b. PSI will be carried out at the manufacturer's factory premises. PSI team will visit the production line of the equipment and the manufacturer will arrange the same. All necessary facilities needed for PSI and operational tests are to be arranged by the supplier without any extra cost. All types of movement/transportation (air/sea/road/rail) of the team within the manufacturer/supplier's country, reception and arrangement for entry into the country/concern area for the PSI team are also to be arranged by the supplier without any extra cost.
- c. On return from the country of the supplier, the PSI team will submit the report to the NHQ/ DNAI&S who will forward the final decision along with PSI report basing on which DGDP will render clearance for shipment of stores to the supplier concerned. The supplier will not make shipment of any item of the contract without clearance from DGDP.
18. **Local Training.** A group of operators/technicians about 12 (twelve) personnel has to be trained locally in Bangladesh for 02 (Two) weeks by the Manufacturer's Engineer on completion of installation and Test/Trial. Cost of air fare (to and fro Bangladesh), accommodation, food and internal transportation (to and fro worksite and hotel) of the Manufacturer's engineer will be borne by Supplier.
19. **Manual.** One set of following documents (in English) are to be supplied with Ultra High-Performance Liquid Chromatography (UHPLC):
- a. Operator's Manual.
- b. Overhaul and Workshop Level Maintenance Manual.
- c. Technical documents (Installation Drawings, Installation Instructions, Specifications etc) required for installation of the UHPLC.
- d. Parts Catalogue.
- e. Material Test Report of different parts including UHPLC is to be supplied during supplying of UHPLC.
20. **Shipment and Delivery.**
- a. **Place of Delivery:** The supplier will arrange shipment of all the items by sea/ airport to Chattogram/Dhaka. Consignee address is as follows:

By Sea

THE COMMANDING OFFICER
NAVAL STORES DEPOT (NSD)
NEW MOORING
CHATTOGRAM, BANGLADESH.

By Air

THE OFFICER-IN-CHARGE,
NAVAL STORES SUB DEPOT, DHAKA
KHILKHET NAVAL AREA,
NAMAPARA KHILKHET, DHAKA-1229.

- b. The supplier will carry the items from Chattogram/Dhaka sea/airport to NSD Chattogram at the cost and risk of supplier.
- c. All items are to be delivered in sea/air worthy packing.
- d. **Port of Shipment.** Manufacturing Country.
- e. **Delivery Schedule.** Item will be delivered within 09 (Nine) months from signing of the Contract.

21. **Certificate and Reports.** Following certificates and reports are to be provided in English for the UHPLC system and all associated equipment during delivery:

- a. Quality assurance certificates for the system and their associated equipment and instruments in regard to it's manufacturer and performance is to be provided.
- b. Factory Test Certificates and Stage Inspection Report.
- c. Guarantee and warranty certificates.

22. **Undertaking Certificate.** An Undertaking Certificate from the supplier must be attached with the offer by stating, "We do hereby assure that any part or the whole UHPLC is found unsuitable for use in the mentioned in Para 11 used by Bangladesh Navy is to be taken back and changed with suitable one for which we shall bear all the cost of to and fro Bangladesh".

23. **Manufacturer's Guarantee Certificate.** Certificate from the manufacturer is to be provided with the offer that the items are new, unused and produced by them in the year 2025 or later will be supplied. It is also to be certified that the offered UHPLC comply with the technical specification mentioned in para 11 and that the UHPLC will be produced in the manufacturer's factory.

24. **Brochure/Catalogue.** One copy original brochure/catalogue in English is to be provided with the offer for evaluation of tender.

25. **User List.** List of military users who all are using the offered UHPLC is to be provided with the offer.

26. **Warranty.**

- a. Warranty is to be given for 01 year from the date of final acceptance by Bangladesh Navy. If any defect/discrepancy of any item arises within the period of warranty, the specific period from the date of notification to the supplier up to the date of rectification of defect/resolve of discrepancy will have to be extended from the warranty period for that particular item(s).
- b. If any defect/discrepancy arises within warranty period, then the item(s) are to be replaced free of cost including freight within 03 (three) months from the date of notification of the same to the supplier. In this regard, the supplier must furnish an undertaking with the offer by stating, "We do hereby assure that we take the liability to replace all item(s) free of cost including freight within three months from the date of notification about the defect/discrepancy of the item(s) by the buyer, if it occurs within the period of warranty".
- c. For warranty replacement, the supplier will collect the defective item(s) from NSD Chattogram and re-supply the same to the collecting place.

27. **Guarantee for Warranty.** Bidder has to give Guarantee for Warranty for the supplied items for the specific period of time mentioned in para 26 for an amount equivalent to 5% of contract price in any bank in Bangladesh designated by DGDP. Bank guarantee will remain valid until the end of warranty period i.e. 01 year from the date of acceptance of the items.

28. **Quality Assurance Certificate.** Defence Quality Assurance Certificate is to be provided with the offer by the Defence Quality Assurance Organization of the manufacturing country.

29. **Guarantee.** The supplier is to give guarantee of continued supply of spares for at least 10 years at a reasonable price. The price of the required spare parts are to be quoted separately.
30. **Packing Details.** All Items (UHPLC with associated accessories) are to be packed in hermetically sealed condition and thermally sealed type standard sea/air worthy packing. Material and size of box, numbers of items per box, weight per box etc. are to be mentioned in the offer.
31. **Final Acceptance.** A joint inspection and Test & Trial of supplied items (UHPLC with associated accessories) will be carried out in Bangladesh. Final acceptance will be given by Bangladesh Navy after satisfactory joint inspection. After Satisfactory Joint inspection all items will be installed on BNS Bhatiary and carryout test & Trial using BN Standard. Manufacturer's engineers/representative will be present during Test & Trial.
32. **Terms of Payment.** LC will be opened for full contract price with the following conditions:
- a. 80% of the CFR/CPT value will be made in foreign currency on submission of appropriate shipping documents, Pre-shipment Inspection certificate and quality assurance certificates.
 - b. Remaining 20% CFR/CPT value will be made after final acceptance by BN.
33. **Validity of Offer.** Up to 30 June 2025.
34. **Compliance Statement.** A compliance statement fulfilling all the required information is to be mentioned with the offer for evaluation of tender. Any deviation from the specification is also to be mentioned in the offer. Mere mentioned of Yes/No or comply may not be enough; detail technical data/information of the offered item are to be provided. Incomplete compliance statement may attribute to cancellation of the offer.