

**TENDER SPECIFICATION OF 4D ULTRASONOGRAM MACHINE WITH STANDARD ACCESSORIES
FOR BNS PATENGA, BNS DHAKA & BNS HAJI MOHSIN**

1. **Name of Equipment:** 4D Ultrasonogram Machine with Standard Accessories.
2. **Purpose:** To be used Physiotherapy Department / Physiotherapy department.
3. **Quantity:** 03 (Three) complete sets (01 X PTG, 01x Dhaka & 01 X HM).
4. **Make /Model:** To be mentioned.
5. **Brand:** To be mentioned.
6. **Country of Origin:** USA/ Canada/ UK/ Germany/ France/ Italy/ Japan/ Australia.
7. **Manufacturing Country:** USA/ Canada/ UK/ Germany/ France/ Italy/ Japan/ Australia.
8. **Name & address of Manufacturer:** To be mentioned with e-mail.
9. **Name of Local Agent with Complete Address (including email & phone number):** To be mentioned by the bidder
10. **Port of shipment:** To be mentioned (if applicable).
11. **Qualification of Bidders:** Only the genuine manufacturer/ principal can submit quotation through authorized local agent.
12. **Year of Manufacture.** From 2026 or later.
13. **Source of Supply:** To be mentioned.
14. **Ambient Condition:** The 4D Ultrasonogram Machine with Standard Accessories. Will be operated and maintained in the following ambient conditions:

a	Ambient air temperature	5°C - 45°C
b	Relative humidity	Up to 95%
15. **Scope of Supply:** 03 (Three) complete sets of 4D Ultrasonogram Machine with Standard Accessories will have to be supplied with all attachments, accessories etc and complete in all respect for immediate operation.
16. **Technical Specification:** Technical Specifications of High End 4D/5D Color Doppler Ultrasound.

Digital Architecture Single Crystal technology

The System would be Fully Digital Architecture High end Dedicated and Premium Level 4D/5D Ultrasound Scanner & Color Doppler system making accurate diagnosis on patient is absolutely critical for physicians and designed to satisfy those needs even for the most complex patient as well as Radiology, OBS, GYN, Cardiology, Trans Cranial Doppler, and MSK application. With state-of-the art high beam former single crystal technologies that provides clearer, more detailed images, high resolution wide HD LED monitor. Furthermore, advance probe technologies such as single crystal add to the image performance. The system DICOM 3.0 connectivity and multi-specially platform with BI-RADS and TI-RADS reporting facilities including built in motorized height adjustable mobile trolley with the following features:

(A) MAIN FEATURES:

1. The monitor should be 27" or more high resolution full HD LED monitor display delivering excellent contrast resolution, image clarity and vibrant color in any lighting condition and articulating arms with resolution minimum 1920 x 1080 x 24 bit.
2. The system should have 14" or more highly sensitive wide tilting LED touch screen for user comfort.

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3. The system must have more than 8 million digital channel processing technology to ensure high quality crystal clear image. Technical data sheet of manufacturer should be enclosed in technical bid to support the number of channels on the systems.
4. The system should be digital brightness and auto contrast adjustment
5. The system should support 1 ~ 22 MHz or more Transducer.
6. The system should support Electronic Linear, Convex, Phased Array, TCD , Pencil (CW) & Volume Transducers.
7. The system should have minimum 4 active Painless universal probe connector
8. The system should have at least 6 probe holders on the control panel
9. The system should have Virtual Screen alphanumeric QWERTY keyboard on touch screen to use in darkened work areas.
10. The system should have at least 10 steps digital TGC on touch screen control panel for quick preset. Image should be visualize real-time in main monitor and Touch monitor during TGC Manipulation. Only analogue TGC slide pot in the control panel not be accepted.
11. The system should have the following modes: Single, Dual & Quad B Mode (2D), M-Mode, Anatomical M Mode, PW Doppler Mode, Trans Cranial Doppler mode, CW Doppler Mode, Color Doppler Mode, Power Doppler Mode (PD), S-Flow Mode, Simultaneous Doppler Mode, Dual live Mode, Duplex& Triplex Mode.
12. The system should have Dual M-Mode to reduce scanning time.
13. The system should have digital high Beam forming Architecture which provides digital signal to produce clear, detailed resolution and tissue uniformity for various types of applications in general imaging.

(B) Standard Features:

1. The System should have Auto Calculation in real Time Automatic Doppler Calculation.
2. The System should have Auto Trace, Limited Trace and Manual Trace in Doppler measurement.
3. The system should have trapezoidal imaging for 2D, Color and Doppler with linear probe
4. Cine Memory at least 85,912 frames or more
5. Cine Loop Memory Maximum 122,568 Lines or more
6. 2D frame rate not less than 5000 f/s
7. Dynamic range should be 370 dB or more
8. 2D imaging depth should be at least 55 cm or more
9. System should have Harmonic (Convex, Linear) that improves image clarity, near to far, reducing signal noise.
10. The System should have S-Flow a sophisticated color Doppler technology with greater sensitivity, can help to detect even the peripheral blood vessels.
11. The system should have CPU: intel i5 2.5GHz or better, DDR4 SDRAM 16GB or more and OS window 10.
12. The system should have on board integrated storage facility of minimum 512 GB SSD.
13. System should have Tissue Harmonic Imaging including Pulse Inversion Harmonic Imaging technology for all transducers.
14. The system should have shadow HDR selectively applies high frequency and low frequency of the ultrasound to identify shadow areas such as visualize fetal head or spine where attenuation occurs.
15. The System should have Multi Vision controls ultrasound beam electronically by steering (minimum 15 steps) and compounds many scan lines for better image of superficial organs. It provides remarkable spatial and contrast resolution with greater artifact suppression.
16. The System should have High Quality vision to eliminate speckle noise which provides edge enhancement and contrast enhancement for clear and natural images.
17. The System should have Full Spectrum Imaging technology by frequency compounding for near field to far field resolution uniformity.
18. The System should have Quick Scan key for auto image adjustment in case gray scale image and Doppler parameters auto angle and ROI correction.
19. The system should have Panoramic Imaging to see the continuation of Muscles, Ligaments, Tendon, Vessels and Nerve.
20. The system should have Auto IMT allows for automatic measurement of the carotid artery Intima-Media thickness for diagnosis of the patient's risks of stroke due to plaque or heart attack.

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21. The system should have user predefined protocols as well as measurement and transducer preset change.
22. The system should have auto Doppler trace during Doppler calculation.
23. The system should have customizable Body Maker
24. The system should have customizable user keys
25. The system should have a feature for post measurement when patient not available after examination.
26. The System should have a feature to modify / edit patient data during and after exam has been completed.
27. The system should have real time image sharing solution that allows collaborative communication for care guide and training between radiologist & sonographer. In addition, voice chatting and real time marking function are provided for efficient communication & the multivue function is included to monitor multiple ultrasound images on a single screen.
28. The system should have advanced smart 3D/4D volume data with Multi Planner view, Multi Slice View, Oblique View, OVIX, VOCAL, Mirror View & Smooth Cut.
29. The system should have Realistic Vue for Fetal appearance smooting and making it Natural
30. System must have FAD (Face Auto Detection) in Real time 4D mode.

(C) Advanced Features must have available in the system Configuration: (for Future Needed)

1. The system should have 2D Shearwave imaging in convex and linear probe.
2. Arterial Analysis detects functional changes of vessels providing measurements values such as stiffness, Intima Media Thickness and pulse wave velocity of the common carotid artery which supports the early detection of vascular diseases.
3. IOTA ADNEX to define and classify the ovarian tumor following the LR1 and LR2 guidelines.
4. Fusion Imaging Enables simultaneous localization of a lesion using real time ultrasound with other volumetric imaging modalities enabling accurate targeting during interventional and other advances clinical procedures.
5. DICOM 3.0

(D) DOCUMENTATION :

- Facility of reviewing and exporting in different formats
- Must have integrated CD/DVD writing – burning facility.
- DVD /CD drive to store / retrieve images in different formats (TIFF / JPEG / BMP / DICOM) / patient reports

(E) TRANSDUCERS :

All transducers should be multi High frequency and pin less connector:

- 1-7 MHz Single Crystal High Resolution Convex Probe atleast 192 elements for General, OB, Gyn & Abdomen imaging.
- 2-14 MHz single crystal Linear Probe atleast 192 elements for small parts, Vascular & MSK Imaging.
- 1-8 MHz Single Crystal High Volume Convex Probe atleast 192 elements for General, OB, Gyn & Abdomen imaging.
- 2-11 MHz Single Crystal (Multi-Frequency) Endocavity Probe for adult TVS & TRS.
- 3-22 MHz Musculoskeletal Ultrasound Linear Probe (Hockey Stick Probe).

17. **Standard Accessories:**

a. A list of Standard accessories is to be provided for the **4D Ultrasonogram Machine with Standard Accessories**. Item wise price list is to be provided with the offer for reference value only.

b. Standard accessories must include all items and accessories, which are essential to operate the offered **4D Ultrasonogram Machine with Standard Accessories** to its maximum functions and capabilities. Any other item required, beyond the list provided below, for the functioning of the **4D Ultrasonogram Machine with Standard Accessories** is to be included in the offer.

c. The price of standard accessories will not be added separately and is to be included in offered Unit Price.

Accessories:

1. Black and White Thermal Printer of latest model for image printouts with 10 Roll printing paper - 1 No.
2. Color laser/ Inkjet Printer for direct printing image from system- 1 No.
3. Appropriate Online UPS with 30 minutes back-up - 1 No.
4. Gel, 5 Liter Container- 2 Nos.
5. 1.5 Ton Spit AC – 1 No.
6. Adjustable Ultrasound chair -1 No.
7. Doctor Revolving Chair -1 No.

} Each Machine

The Manufacturer must have its own service centre in Bangladesh or the distributor of the manufacturer must have factory trained service engineer.

18. **Local Training:** The supplier will arrange following training at **BNS PATENGA, BNS DHAKA & BNS HAJI MOHSIN** free of cost:

- a. Operational Training: 02 x Operator for 01 week/ as required.
- b. Repair/ Maintenance Training: 02 x EM Tech (02x Navy) for 01 week/as required.

19. **Publication:** Following brochure/catalogue in English language showing detailed particulars of the quoted items should supplied along with the offer with each machine:

- a. Operation manual – 03 copies (1 x Original & 2 x Photocopies).
- b. Repair/maintenance/service manual including detail circuit/schematic diagram-03 copies (1x Original & 2 Photocopies).
- c. Parts Catalogue/Master Parts list – 03 copies (1x Original & 2 Photocopies).

20. **Spare Parts:** Adequate number of fast moving spare parts and other recommended spare parts required for 3 years operation are to be quoted indicating item wise price from which buyer will select as per requirement. The supplier should provide guarantee for supplying spare parts for a minimum period of 3 years.

21. **After Sales Service:** The supplier should have requisite after sales service facilities at home to render necessary services as and when required by BN. Necessary agreement will be signed if required.

22. **Test, Trial and Acceptance:** The supplier will carry out installation, test and trial of the supplied machine at his own cost. The acceptance of the supplied items will be carried out by **BNS PATENGA, BNS DHAKA & BNS HAJI MOHSIN** where the supplier's representative will be present. After the satisfactory test/ trial, with certificate the acceptance certificate will be given by **the CINS Chattogram & ACINS Dhaka**.

23. **Warranty/Guarantee:**

- a. The supplier must ensure that all items are new and unused. The supplier must provide warranty at least for **03 (three) years** from the date of acceptance of the item(s) after satisfactory inspection, test, trial etc as applicable. If any defect/discrepancy of any item arise within the period of warranty, the specific period from the date of notification of the defect/ discrepancy to the supplier upto the date of rectification of defect/resolve of discrepancy will have to be deducted from the warranty period for that particular item(s).
- b. In warranty period the supplier will provide all accessories, maintenance and repair services. If any defect/discrepancy arises, within warranty period, then the respective item(s) is/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, "I do hereby assure that we take the liability to replace all spare parts/item(s) free of cost including freight within three months from the date of notification about the defect/discrepancy of the spare parts/item(s) by the buyer, if it occurs within the period of warranty".
- c. The service should be provided within 7 days from the date of complaints lodged.
- d. Warranty period will be counted from the date of acceptance by **CINS Chattogram & ACINS Dhaka**.

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- e. In warranty period the supplier will provide all maintenance & repair services free of cost.
24. **Delivery:** The supplied items are to be delivered within **03 (Three) months** from the date of signing contract to **The Commanding Officer NSD Chattogram and OIC NSSD Dhaka**.
25. **Inspection:** CINS Chattogram & ACINS Dhaka.
26. **Consignee:** The Commanding Officer NSD Chattogram and OIC NSD Dhaka.
27. **Validity of Offer:** **Up to 30 June 2027**. Authority may cancel work order if supplier fails to supply in due date. Without sufficient cause if extension is required supplier should apply before 15 days showing acceptable causes.
28. **Certificate/Document of Authentication:** The supplier must provide following original certificate(s)/document(s) with the offer/quotation to ascertain the genuinely of source and item(s) in order to establish chain of links from the original source of supply items.
- FDA/EC/CE/EU Certificate /JIS or any other authorized certificate must be submitted.
 - Trained Bio Medical Engineer list with update CV.
 - Must have Global Trade Item Numbers (GTINs) Manufacture Part Numbers (MPNs) with website links.
 - Supply/Tenderer has to submit the authorization letter of the original manufacturer or importer's authentication certificate.
29. **Users List:** User List in Bangladesh with contract number of the quoted machine is to be provided along with the offer.
30. **Terms of Payment:** 100% payment will be made after satisfactory test, trial and acceptance by BN in local currency.
31. **Condition for Acceptance of Quotation:** Quotation has to have supporting documents (booklets, leaflet, catalogue, brochure etc) having detailed particulars of the offered **4D Ultrasonogram Machine with Standard Accessories**. The quotation will not be accepted If detailed information regarding specifications, maker's books and catalogue about the same model of the machine quoted, list of spare parts and accessories, etc are not provided.
32. **Compliance statement:** A compliance statement fulfilling all requirements of the tender is to be submitted for evaluation of the quotations, Stating mere 'Yes' or 'No' will not suffice and detailed description/ information's as required are to be given. An in compliance statement may attribute to cancellation of the offer. If any clause of this specification does not commensurate with the offered item, the deviation has to be spelt out clearly.
33. **Price Quotations:** Price is to be quoted in local currency without import duty as follows:

Name of item	Qty	Unit Price	Total Price
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MD. ATIKUR RAHMAN
Surg Lt BN
Staff Officer (DMS Navy)
Naval Headquarters
Banani, Dhaka-1213