

RESTRICTED

TENDER SPECIFICATION OF GYRO COMPASS (NAVIGATION)

1. **Name of Equipment.** Gyro Compass (Navigation).
2. **Purpose.** The Gyro Compass shall be used onboard naval ships to provide necessary heading information. The offered gyro shall be interfaced with other ship borne system i.e., steering system, radar system, ECDIS etc.
3. **Quantity.** 06 (Six) Complete sets.
4. **Type.** Mechanical (Rotary/ Spinning Mass Gyro).
5. **Standardized Gyro Compass of BN.** BN Standardized list of Gyro Compass is as follows:

Ser	Brand	Manufacturer
1.	Sperry Marine	Sperry Marine, USA/UK
2.	GEM Elettronica	GEM Elettronica s.r.l, Italy
3.	Anschutz	Raytheon Anschutz, Germany
4.	Yokogawa	Yokogawa, Japan
5.	Alphatron	Alphatron Marine B.V, Netherlands

6. **Brand.** To be mentioned (within standardized Gyro Compass as per para-5).
7. **Model.** To be mentioned.
8. **Country of Origin.** USA, UK, Italy, Germany, Japan and Netherlands (To be mentioned).
9. **Manufacturing Country.** USA, UK, Italy, Germany, Japan and Netherlands (To be mentioned).
10. **Original Equipment Manufacturer (OEM).** Name and full address with telephone number and e-mail of OEM to be mentioned.
11. **Principal/ Supplier/ Bidder.** Name and full address with telephone number and e-mail of Principal Supplier is to be mentioned.
12. **Local Agent.** Name and full address with telephone number and e-mail of Local Agent is to be mentioned.
13. **Year of Manufacturing.** 2025 or later.
14. **Qualification for Bidder.** Manufacturers of Gyro Compass or their authorized distributor/ agent can submit quotations through their authorized local agent enlisted in DGDP. In case of offer from distributor/ agent, certificate of dealership/ agencyship from OEM is to be submitted with the offer. In this regard the following certificates are to be submitted with the offer (if not OEM):
 - a. Authorization Certificate from OEM.
 - b. Supply Assurance Certificate from OEM.
15. **Manufacturer Requirement.** The items should be brand new, unused and of recent model, proven reliability in the field of operation. The supplier will ensure the continuity of the operation and availability of necessary spares for at least 15 years each in case of obsolete model over time. In case of absence of spare parts, the OEM is to be propose appropriate/ alternate solution's to ensure handle free operation of the equipment for the said period.
16. **User List.** List of users of the offered Gyro is to be mentioned with full address. The list should provide the name of various navies/ coastguards/ merchant marines with respective model and brand of offered Gyro. The Gyro should be widely used. The user list will be evaluated for the assessment of the offer.
17. **Condition for Acceptance of Quotation.** The quotation should have supporting colour documents (booklets, leaflets, catalogues, brochures etc) with details about the offered Gyro compass, If detailed information regarding specifications, manufacturer's manuals and catalogue for the quoted model of the Gyro compass, spare parts, accessories, scope of supply, etc are not provided the quotation may not be accepted.



RESTRICTED

18. **Acceptance/ Rejection of Bid.** DGDP/ BN reserves the right to accept or reject any bid or to terminate the bidding process and reject all bids at any time prior to the contract award (without thereby incurring any liability to the BIDDER).

19. **Classification/ Standard.** The offered item is to fulfill the requirement of IEEE/ IEC/ IMO and other competent internationally recognized standards. The applicable classification standard(s) of offered items are to be mentioned and should be well supported by the certificates/ OEM brochures.

20. **Scope of Supply.** The scope of supply (but not limited to) is mentioned below:

a. 06 x Complete Gyro Compass Main unit with associated items/ accessories necessary for immediate operation including followings:

- (1) 06 x Display Unit (01 in no for each set).
- (2) 06 x Power Supply Unit (01 in no for each set).
- (3) 12 x Digital Tape Repeater.
- (4) 09 x Digital Repeater.
- (5) 06 x Indoor Bearing Repeater.
- (6) 12 x Outdoor Bearing Repeater.
- (7) 06 x NMEA Buffer Unit (Minimum 8 channel).
- (8) Cables and Accessories Kit for System Installation and Interfacing.
- (9) Tools and Accessories including Case.

b. Standard Accessories.

c. Interface Control Documents (ICD).

d. Certification and Reports.

e. Drawing and Manual/ Documentation.

f. Spares (Optional).

g. Factory Acceptance Test (FAT).

21. **Environmental Condition and Other Standard.** The requirement features are as follows:

- | | | |
|--------------------------|---|---|
| a. Operating Temperature | : | 0°C to 55°C |
| b. Storage Temperature | : | To be mentioned |
| c. Relative Humidity | : | Up to 95% (Non-condensing) |
| d. For Shock | : | MIL-STD-810F/ IEC 60945 or equivalent (To be mentioned) |
| e. For Vibration | : | IEC-60945 or equivalent standard (To be mentioned) |
| f. Sea Keeping | : | To comply with the ship's movement as follows:
(1) Roll : $\pm 30^\circ$
(2) Pitch : $\pm 10^\circ$ |
| g. EMI/EMC | : | IEC 60945 or equivalent standard (To be mentioned). |

22. **General Features.** The offered Gyro Compass is to have the following features (but not limited to):

- a. High accuracy.
- b. Speed/ latitude correction.
- c. Analog and digital data output.
- d. Certified by IMO and type approved as Gyrocompass by classification society.



23. **Technical Specification.**

- a. **Gyro Compass Main Unit With Associated Items/ Accessories.** The specification of Gyro Compass Main unit with associated items/ accessories necessary for immediate operation is as follows (but not limited to):

Ser	Description	Parameter
1.	Rate of Turn Resolution	≤ 0.5 degrees/ minute $\pm 5\%$ or better
2.	Settling time	<4 hours or less
3.	Static Error	0.1° sec Lat RMS or better
4.	Dynamic Error	0.4° sec Lat RMS or better
5.	Protection Grade	IP 22 or better
6.	MTBF	≥ 100000 hours or more
7.	Power Supply	To be mentioned
8.	Signal Outputs	
	a. Number of outputs	4 serial outputs or more
	b. Interface Port	Ethernet Interface, RS 422, RS 232 etc
	c. Baud rate	To be mentioned
9.	Dimension	To be mentioned
10.	Weight	To be mentioned
11.	Other Specifications (If any)	Details to be mentioned

- b. **Display Unit.** The specification of Display Unit is as follows (but not limited to):

Ser	Description	Remarks
1.	Country of Origin	As per paragraph 8 (To be mentioned)
2.	Manufacturing Country	As per paragraph 9 (To be mentioned)
3.	Brand	To be mentioned
4.	Model	To be mentioned
5.	Display Size	To be mentioned
6.	Display Type	TFT/LCD/LED (To be mentioned)
7.	Resolution	To be mentioned

- c. **Power Supply Unit.** The specification of Power Supply Unit is as follows (but not limited to):

Ser	Description	Remarks
1.	Country of Origin	As per paragraph 8 (To be mentioned)
2.	Manufacturing Country	As per paragraph 9 (To be mentioned)
3.	Brand	To be mentioned
4.	Model	To be mentioned
5.	Power Supply	
	(a) Input : 220V AC, 50Hz and 24V DC as backup power supply	
	(b) Output	To be mentioned
6.	Power consumption	To be mentioned
7.	Protection (Against over-voltage low voltage and inversion of polarity)	To be mentioned

- d. **Digital Tape Repeater.** Detail requirement of digital tape repeater are as follows:

Ser	Description	Remarks
1.	Brand	To be mentioned
2.	Model	To be mentioned
3.	Year of Manufacturing	2025 or later
4.	Ingress Protection (IP)	IP56 or better (To be mentioned)
5.	Dimension	To be mentioned
6.	Weight	To be mentioned
7.	Other Major Features	Details to be mentioned
8.	Interface	RS 422, NMEA 0183 (To be mentioned)



- e. **Digital Repeater.** Detail requirement of digital repeater are as follows:

Ser	Description	Remarks
1.	Brand	To be mentioned
2.	Model	To be mentioned
3.	Year of Manufacturing	2025 or later
4.	Ingress Protection (IP)	IP56 or better (To be mentioned)
5.	Dimension	To be mentioned
6.	Weight	To be mentioned
7.	Other Major Features	Details to be mentioned
8.	Interface	RS 422, NMEA 0183 (To be mentioned)

- f. **Indoor Bearing Repeater.** The detail requirement of bearing repeater are as follows:

Ser	Description	Remarks
1.	Model	Digital Auto Rephrasing Course and Bearing
2.	Year of Manufacturing	2025 or later
3.	Ingress Protection (IP)	IP42 or better (To be mentioned)
4.	Dimension	To be mentioned
5.	Weight	To be mentioned
6.	Baud Rate	4800 bps
8.	Resolution	To be mentioned
9.	Accuracy	To be mentioned
10.	Other Major Features	Details to be mentioned
11.	Interface	RS 422, NMEA 0183 (To be mentioned)

- g. **Outdoor Bearing Repeater.** The detail requirement of outdoor bearing repeater are as follows:

Ser	Description	Remarks
1.	Model	Digital Auto Rephrasing Course and Bearing
2.	Year of Manufacturing	2025 or later
3.	Ingress Protection (IP)	IP56 or better (To be mentioned)
4.	Dimension	To be mentioned
5.	Weight	To be mentioned
6.	Interface	RS422, NMEA 0183
7.	Baud Rate	4800 bps or better (To be mentioned)
8.	Resolution	To be mentioned
9.	Accuracy	To be mentioned
10.	Other Major Features	Details to be mentioned

- h. **NMEA Buffer unit.** The technical specification of offered NMEA Buffer unit is as follows (not limited to):

Ser	Description	Remarks
1.	Brand	As per para 20 (To be mentioned)
2.	Model	To be mentioned
3.	Country of Manufacturer	As per para 23 (To be mentioned)
4.	Year of Manufacturing	2025 or later
5.	Ingress Protection (IP)	IP 42 or better
6.	Dimension	To be mentioned
7.	Weight	To be mentioned
8.	Number of Channel	Minimum 08 Channel

- j. **Cables and Accessories Kit for System Installation.** Technical specification of Cables and Accessories Kit for System Installation is as follows:

Ser	Description	Remarks
1.	Brand	To be mentioned



RESTRICTED

Ser	Description	Remarks
2.	Model	To be mentioned
3.	Country of Origin	To be mentioned
4.	Country of Manufacturer	To be mentioned
5.	The requirement of cables is to be assessed by the supplier through Pre-bid Site Survey/ ship visit and to be submitted with the offer. Supplier shall have to meet additional requirement of cables during installation and interfacing. Details of various cable specifications are to be provided along with the price.	

k. **Tools and Accessories Including Case.** The supplier is to provide necessary tools and accessories including case with the gyro. In this regard, a list of tools and accessories are to be quoted with the offer mentioning item-wise price.

24. **Power Supply Available at Ship.** The power supply available at ship is 415V & 440V AC $\pm 5\%$, 50Hz, 3 Phase and 220V $\pm 5\%$, 50Hz. Any other power supply unit (if necessary) is to be provided by the Supplier. However, the supplier should confirmation the details power output and requirement during pre-bid site survey.

25. **Standard Accessories.** Standard accessories must include every item and accessories, which are essential to make the offered Gyro operational with full functionality, whether those are mentioned in the specification or not are to be supplied by the bidder within the scope of the supply. Any such accessories, kit and associated items to operate the said equipment in full functionality are to be mentioned clearly with purpose and submit with offer mentioning item wise price.

26. **Certificate and Reports.**

a. Following certificates and reports are to be provided in English for the offered item including associated equipment/ accessories **with the offer**:

- (1) 'Type Approval Certificates' of classification society.
- (2) Supply Assurance Certificate.
- (3) Guarantee and Warranty Certificates.
- (4) After Sales Service Support Certificate.

b. Following certificates and reports are to be provided in English for the offered item including associated equipment/ accessories **during delivery**:

- (1) 'Type Approval Certificates' of classification society.
- (2) 'Quality Assurance Certificates' for each item and their associated equipment and instruments from OEM is to be provided.
- (3) 'FAT Certificates'.
- (4) Certificate of Genuine Product and Brand-New Item.
- (5) Guarantee and Warranty Certificates.
- (6) After Sales Service Support Certificate.

27. **Drawing and Manual/ Documentation.**

a. **Installation Drawings.** Following drawings are to be submitted for buyer's approval prior 04 (Four) months of commencing of installation work:

- (1) Layout drawing.
- (2) Electrical inter-connection diagram of all equipment.
- (3) Cable diagram including cable type and cable grouping.
- (4) List of works (facility work support) those are needed from BN.



RESTRICTED

b. **Manuals/ Document.** 06 (Six) sets of following documents and manuals in English are to be provided **at free of cost** at the time of delivery:

- (1) Operating Manual.
- (2) Technical Manual with Circuit Diagram (At lasts upto component level).
- (3) Maintenance Manual.
- (4) Parts Catalogue with parts Identification List (PIL).
- (5) Installation Manual having Layout drawing of equipment, alignment instruction, electrical interconnection diagram, cable diagram, diagram showing interface (mechanical and electrical) and data protocol.

28. **Brochures/ Booklet.** 02 (Two) set of original Brochures/ Booklets including soft copy in English having details technical information about the quoted of Gyro is to be provided along with the quotation for evaluation/ assessment.

29. **Spares (Optional).** Following spares are to be quoted separately mentioning item wise price. Buyer may select the items as required from the list for procurement:

Ser	Name of item	Unit price
1.	Digital Repeater	Price to be quoted
2.	Indoor Bearing Repeater	
3.	Outdoor Bearing Repeater	
4.	NMEA Buffer Unit	
5.	External Syncro Unit	

30. **Factory Acceptance Test (FAT).** Following FAT is to be carried out in OEM premises for the offered equipment:

a. FAT shall be carried out by a team of 03 (Three) BN members for duration of 05 (Five) working days in OEM premises at the buyer's expense. Both way air fare, accommodation and food for the FAT team shall be borne by BN. All types of movement/ transportation (air/sea/road) of the team within the manufacturer's country, reception and arrangement for entry into the country/ concerned area for the FAT are to be arranged by the supplier. The item-wise cost in this respect is to be quoted in the offer. The supplier should inform the buyer about the date of FAT (schedule) and FAT criteria at least 08 (Eight) weeks prior to the date of FAT. FAT procedure shall be forwarded to the buyer 08 (Eight) weeks prior to the date of commencement of the FAT to the concerned directorate for approval of BN. The purchaser shall have the right to amend the schedule of FAT be caused on service requirements.

b. On return from the country of manufacturer, the FAT team will submit the report to concerned Directorate at Naval Headquarters. Naval Headquarters will, forward final decision along with FAT 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.

c. The objective of FAT shall be to check the capability of the system as per the technical specification mentioned in the offer. The FAT shall be carried out at manufacture's factory premises. In this regard, the FAT protocol is to be submitted for approval by BN well in advance.

d. During FAT, various tests for checking performance are to be carried out and recorded. After FAT, a joint test report shall be prepared and signed by both the seller and buyer's representative.

e. **Country and Location of FAT.** Details are to be mentioned.

31. **Installation, Setting to Work (STW) and Acceptance.**

a. **Installation Materials and Accessories.** All Installation materials, like junction's boxes, brackets, nuts, bolts, securing tie clips, slips, channels, Sealing Materials (not limited to) are to be provided by the supplier. Bidder may visit the installation site prior submitting the offer.

b. All the offered Gyro will be installed in any suitable BN ship (to be selected later) by Gyro and Sonar Workshop of ASD Organization of Bangladesh Navy (BN).



RESTRICTED

- c. Bangladesh Navy will ensure satisfactory tests, trial and functioning/ commissioning of the equipment with the help of ASD Organization of BN.
- d. **Acceptance.** The supplied gyro is to be tested at the Gyro and Sonar Shop of the ASD organization and an acceptance certificate will be provided by ASD.
32. **Delivery.**
- a. **Delivery Time.** The items shall be delivered to the 'Place of Delivery' within **09 (Nine)** months after signing the contract.
- b. **Place of Delivery.** NSD, Chattogram.
- c. In case of CFR, the supplier shall carry the items from sea port/ air port (as applicable) to NSD, Chattogram and Khulna at the cost and responsibility of supplier.
33. **Shipment.**
- a. **Source of Supply.** The source of supply of the offered Gyro Compass are to be mentioned. It should be from the country of manufacturer or country of origin.
- b. **Port of Shipment:** The Port of Shipment of the offered Gyro Compass are to be mentioned. It should be from the country of manufacturer or country of origin.
- c. **Consignee.** The supplied item shall be the following consignee:
- | | | |
|--------------------------|----|----------------------------------|
| The Commanding Officer | or | Officer In Charge |
| Naval Stores Depot | | Naval Stores Sub Depot Dhaka |
| New Mooring, Chattogram, | | Naval Unit Khilkhet |
| Bangladesh | | Namapara, Dhaka-1229, Bangladesh |
| BIN-002349278-0503 | | |
- d. All items should be brand new and to be delivered by seaworthy packing to ensure safe transit by sea. Certificates in this regard are to be provided during delivery.
- e. All packages should have packing notes showing their contents in detail and all packages shall be marked with the name and address of the consignee and gross weight.
34. **Project Timeline.** A forecasted project timeline indication month-wise event is to be provided with the offer and another reviewed project time line with project implementation plan is to be submitted after 15 days of signing the contract. The project timeline and implementation plan shall have clear indication of duration with details of support/ facility work required from BN.
35. **Warranty, Guarantee and After Sales Service.**
- a. **Warranty.**
- (1) 12 (Twelve) months manufacturer's warranty for trouble free operation is to be provided for the item from the date of acceptance by the purchaser. If any component and submit of the supplied items becomes defective during the warranty period, the overall warranty shall be extended automatically for the period of subject component remains defective.
- (2) For warranty repair/ replacement, the supplier shall collect the defective item from NSD, Chittagong/ NSD Khulna/ NSSD, Dhaka (as applicable) and re-supply the same to collecting place after warranty repair or for replacement within 90 (ninety) days from the date of defect at no cost to the purchaser.
- b. **Bank Guarantee (BG) for Warranty.** The BIDDER shall issue a Bank Guarantee (BG) during submission of last 20% payment for a value of **@ 05% (Five percent) of the total CFR value** from any scheduled bank in Bangladesh in favour of The Senior Finance Controller (Navy), Sailors Colony, Lalasarai, Mirpur-14, Dhaka-1206, representing Bangladesh Navy, Peoples Republic of Bangladesh, information to The Directorate General Defence Purchase, Ministry of Defence, Peoples Republic of Bangladesh. This BG shall remain valid until the warranty period of the **Gyro Compass (Navigation)** and other items (notwithstanding minor deficiencies which would be mutually settled and agreed between PURCHASER and BIDDER) in Bangladesh, and it shall expire on receipt of **Warranty Completion Certificate**. If the contractual obligation warrants the extension of the validity of the BG, the BIDDER shall remain liable to do so at its own cost. In case of material failure of the BIDDER to fulfill its contractual obligation as per the terms



RESTRICTED

and conditions of the contract, the BG in full or part thereof may be forfeited at the discretion of the PURCHASER.

c. **Guarantee.** The supplier is to give guarantee of continued supply of spares for at least 10 (Ten) years at a reasonable price (not exceeding 3% per year). Certificate is to be submitted with the offer.

d. **After Sales Service.** After sale service should be available with the local agent of supplier and is to be provided as and when required for indefinite period or at least 15 years after the installation. If any system, equipment etc becomes obsolete or out of production during or after the installation period (at least upto 15 years), the supplier is to submit alternative of same/ improved version for selecting the suitable replacement.

36. **Validity.** The offer shall remain valid till 30 June 2026.

37. **Terms of Payment.** Payment shall be made through an Irrevocable Letter of Credit (LC). LC shall be opened at the expense of the PURCHASER and **100% LC** value shall be made operative in favour of Supplier. CFR value being the value of the supplied goods, payment shall be made as under:

a. **1st Installment.** 80% of CFR value shall be paid **after shipment of hardware and software** and on submission of the following documents to the bank:

(1) Original Airway Bill (AWL)/ Bill of Landing (BL) must be issued by air lines/ shipping lines or authorized agent of shipping lines/ air lines against DGDP contract reference (after signing the contract). LC number, and Bangladesh bank registration number are to be mentioned in AWL/ BL. Freight amount must be shown separately otherwise only FCA value shall be paid. All documents to be submitted (01) original with at least (05) five copies other than bill of lading shall be (03) three original with (03) three copies. In addition to this, following shall also be considered:

(a) Name of the carrier must be indicated in AWL/ BL.

(b) Must be signed by carrier or a named agent for/ on behalf of the carrier.

(2) 'Supplier's Signed Commercial Invoice' for (freight/ services amount to be shown separately (if applicable)) representing 80% of CFR value as stated in the contract.

(3) 'Packing List' signed by the authorized representative of the shipping company or exporter.

(4) 'Certificate of Origin' signed by the Manufacturer's Authorized Person/Authorized Official of the exported country.

(5) 'Manufacturer's Certificate' Signed by the MANUFACTURER/ SUPPLIER. Certifying that product has been produced as per technical data/ analytical data and specification as per contract.

(6) 'Manufacturer's Warranty Certificate' Signed by the MANUFACTURER/ SUPPLIER.

(7) 'Factory Acceptance Test (FAT)/ Pre-Shipment Inspection (PSI) Completion Certificate' signed by the SUPPLIER.

(8) 'Quality Assurance Certificate' (QAC) signed by the SUPPLIER.

(9) 'Shipment Clearance Letter' Signed by DGDP (Directorate General Defense Purchase, Dhaka, Bangladesh) as PURCHASER.

b. **2nd Installment.** 20% of CFR value shall be paid **after acceptance the Gyro** and on submission of the following documents to the bank:

(1) 'Supplier's Signed Commercial Invoice' for representing 20% of CFR value as stated in the contract.

(2) 'Acceptance Certificate' issued by the PURCHASER after successfully tested of the Gyro.

(3) The bidder shall submit the relevant document of 5% BG of CFR value, which shall be released on submission of warranty completion certificate.

c. **Installment of Factory Acceptance Test (FAT).**



RESTRICTED

(1) **Factory Acceptance Test (FAT).** 100% cost of FAT shall be paid **after successful completion of FAT** and on submission of the following documents to the bank:

- (a) 'FAT report' signed by the PURCHASER for the successful completion of the 'FAT' in OEM premises.
- (b) 'Supplier's Signed Commercial Invoice' for 100% of FAT value as stated in the contract.

38. **Price.** Price of the each item and services for the said product are to be shown separately (e.g. price of the main equipment, additional accessories, Installation, local training, warranty/ guarantee etc) and then grand total of the foreign currency to be shown on the original offer submitted by the bidder. Moreover, if the item is imported against this tender, price is to be quoted without import duties.

39. **Compliance Statement.** 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 and detailed evidences with description/ information, brochures/ 7booklet, drawing and diagram as required is to be given. An incomplete compliance statement may attribute to cancellation of the offer. If any clause of this specification does not commensurate with the offered Gyro, the deviation has to be spelt out clearly.



