

## RESTRICTED

**TENDER SPECIFICATION OF DIFFERENTIAL TRANSFER ALIGNMENT SYSTEM - BN DOCKYARD**

1. **Name of the Equipment.** Differential Transfer Alignment System.
2. **Purpose.** To measure misalignment between two platforms. One of them is reference platform and another is the platform under test (where an equipment such as gyro, radar, tracker, gun etc will be installed). The system is to measure alignment in 03 (three) axis (roll, pitch and yaw). The system needs to perform the alignment test in static or dynamic (on board a floating ship) situation by a non-optical method (gyroscopic).
3. **Quantity** : 01 (One) Complete Set.
4. **Type** : Portable (To be mentioned).
5. **Brand** : To be mentioned.
6. **Model** : To be mentioned.
7. **Country of Origin** : Canada, EU Countries, Japan, UK, USA, Norway, Australia, South Korea and Switzerland (Country to be mentioned).
8. **Manufacturing Country** : Canada, EU Countries, Japan, UK, USA, Norway, Australia, South Korea and Switzerland (Country to be mentioned).
9. **Original Equipment Manufacturer (OEM).** Name and Full address with telephone number and e-mail of OEM to be mentioned.
10. **Principal/ Supplier/ Bidder.** Name and Full Address with telephone number and e-mail of Principal Supplier is to be mentioned.
11. **Local Agent.** Name and Full Address with telephone number and e-mail of Local Agent is to be mentioned.
12. **Year of Manufacturing.** 2025 or later.
13. **Qualification of Bidder.** Manufacturers of Differential Transfer Alignment System or their authorized distributor/ agent can submit quotations through their authorized local agent enlisted in DGDP. In case of offer from foreign trading company/ distributor/ agent, certificate of dealership/ agencyship from Original Equipment Manufacturer (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.
14. **Equipment Manufacturer and Reliability/ Requirement.** The newly installed items should be brand new, unused and of recent model, proven reliability in the field of operation. The supplier shall ensure the continuity of the operation and availability of necessary spares for at least 15 years each in case of obsolete model over time.
15. **User List.** List of users of the offered system is to be mentioned with full address. The list shall provide the name of various navies/ coastguards with respective model and brand of offered system. The system should be widely used by various navies/ coastguards. The user list will be used for the assessment of the offer.
16. **Condition for Acceptance of Quotation.** The quotation has to have supporting documents (booklets, catalogues, brochures etc) with details about offered equipment/ item. If detailed information regarding specifications, manufacturer's manuals and catalogue for the quoted equipment/ items PCBs and modules, etc are not provided the quotation may not be accepted.
17. **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).
18. **Classification/ Standard.** The offered item is to fulfil 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.



19. **Environmental Condition.**

- a. Temperature : -5°C to +50°C
- b. Relative Humidity : up to 95% (Non condensing)
- c. Climate : For Tropical Environment like Bangladesh.
- d. Storage Temperature : To be mentioned.

20. **Scope of Supply.**

- a. 01 x Complete set of Differential Transfer Alignment System with following composition (as per para- 21 to 25):

Ser	Description	Deno	Qty	Remarks
1.	Sensor Unit (01 x Master and 01 x Slave Unit)	No	02	
2.	Main Base and Synchronization Plate	No	01	
3.	System Laptop with Loaded Software	No	01	
4.	Power Supply Arrangement	-	As required	
5.	Power and Control Cables	-	As required	
6.	100mm, 76mm, 57mm, 40mm, 37mm, 30mm, 25mm, 20mm, 14.5mm and 12.7mm Gun barrel mechanical installation plate (Bore Adapter)	Set	01	
7.	Hard Case System Box	No	01	
8.	Other required accessories	-	As required	

- b. Certification and Reports (as per para- 26).
- c. Drawing and Manual/ Documentation (as per para- 27).
- d. Other accessories/ Items/ Spares (Optional) (as per para- 28).
- e. Factory Acceptance Test (FAT) (as per para- 29).
- f. Local Training(as per para- 30).
- g. Installation, Test/ Trial and Acceptance(as per para- 31).

21. **General Features and Capability.** The supplied Differential Transfer Alignment Equipment for Sensors and Weapon System should be a standalone system to provide a complete solution for carrying out real time roll-pitch and azimuth measurement to find alignment error between two platforms like gun and Sensor onboard Navy Ship while floating. Operation is to be simplified by menu driven software and can be printed, saved and retrieved for later analysis. The key features will be as follows:

- a. Fixed Plane Measurement.
- b. Angles around space coordinate axes measurement.
- c. Azimuth, tilt and elevation Measurements.
- d. Recorded data generated by software.
- e. Alignment system should be possible to measure data on static /dynamic position of the vessel using master and slave alignment sensor.
- f. The Alignment Equipment for sensor and Weapon System should be a sophisticated computer-controlled set of equipment which makes it easy to perform all common alignment tasks.

22. **Additional Feature Offered by Bidder.** The bidder may suggest and offer additional features for the offered system. In this case, Bidder is to explain the detailed advantage of that/ those features of the offered system.



# RESTRICTED

23. **Technical Specification.** The technical specification of the Differential Transfer Alignment System should have followings (but not limited to):

Ser	Subject	Remarks
a.	<b><u>Precision Alignment Sensors (Master and Slave)</u></b>	
1.	Brand	To be mentioned
2.	Model	To be mentioned
3.	Sensor Unit	1x Master Sensor, 1 x Slave Sensor
4.	Measuring Data (Number of axis to be measured)	Three axis (To be mentioned)
5.	Measurement Range	±360° degrees
6.	Accuracy	To be mentioned
7.	Data Rate and Output	To be mentioned
8.	Operating Modes	At dry dock, Floating dock and wet berth (To be mentioned)
9.	Dimension (L x B x H)	To be mentioned
10.	Weight	To be mentioned
11.	Power Supply	To be mentioned
12.	Built in Test	To be available
13.	Shock Resistance	To be mentioned
b.	<b><u>Data Acquisition Software</u></b>	
14.	Software Name & Version	To be mentioned
15.	Salient Features	To be mentioned
16.	Licence (Lifetime)	To be mentioned
17.	Software Backup	To be provided
c.	<b><u>Bore Adapter</u></b>	
18.	Brand	To be mentioned.
19.	Model	To be mentioned.
20.	Type	To be mentioned.
21.	Country of Origin	To be mentioned.
22.	Country of Manufacturer	To be mentioned.
23.	Barrel Interface (To be provided)	100mm, 76mm, 57mm, 40mm, 37mm, 30mm, 25mm, 20mm, 14.5mm and 12.7mm Gun Barrel.
24.	Length	To be mentioned.
25.	Weight	To be mentioned.
26.	Material	To be mentioned.
d.	<b><u>Laptop</u></b>	
27.	Brand	To be mentioned
28.	Model	To be mentioned
29.	Type	Fully Rugged (To be mentioned)
30.	Country of Origin	As per paragraph-7 (To be mentioned)
31.	Country of Manufacturer	To be mentioned
32.	Interface Ports	As required for the system (To be mentioned)
33.	RAM	64 GB DDR5 or higher
34.	Mass Storage	SSD 500 GB or more
35.	Processor	14 <sup>th</sup> Generation Intel® Core™ i7 or higher
36.	Other Ports	To be mentioned
37.	Operating System	Windows 11 or latest (Compatible with the supplied software)
38.	Size and Weight	To be mentioned

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

25. **Software & Backup Software.** Necessary software and Backup software with license copy of all related software are to be provided in CD/ DVD and portable memory device. Method of loading and recovery of software is to be provided.

26. **Certificate and Reports.**



RESTRICTED

- a. Following certificates and reports are to be provided in English for the offered item including associated equipment/ accessories **with the offer**:
- (1) Supply Assurance Certificate.
  - (2) Guarantee and Warranty Certificates.
  - (3) 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) 'Quality Assurance Certificates' for each item and their associated equipment and instruments from OEM is to be provided.
  - (2) 'FAT Certificates'.
  - (3) Certificate of Genuine Product and Brand-New Item.
  - (4) Guarantee and Warranty Certificates.
  - (5) After Sales Service Support Certificate.
27. **Drawing and Manual/ Documentation.**
- a. **Drawings.** Following drawings are to be submitted for buyer's approval prior 04 (Four) months of commencing of installation work:
- (1) Electrical inter-connection diagram of all equipment.
  - (2) List of works (facility work support) those are needed from BN.
- b. **Manuals/ Document.** 02 (Two) set 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).
28. **Accessories/ Tools/ Spares.** Items (Optional)/ accessories if needed to be quoted separately with item wise price. The buyer may select any of the suggested items from the proposed list.
29. **Factory Acceptance Test (FAT).** Following FAT is to be carried out at OEM premises for the offered item:
- a. FAT will be carried out by a team of 02 (Two) BN members for duration of 03 (three) working days in OEM premises at the buyer's expense. Both way air fare, accommodation and food for the FAT team will 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 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 4 (four) weeks prior to the date of commencement of the FAT to the concerned directorate for approval of BN.
- b. On return from the country of manufacturer, the FAT team will submit the report to concerned Directorate at Naval Headquarters. Naval Headquarters will, in turn, 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 FAT will be carried out at manufacture's factory premises following approved FAT protocols. In this regard, the FAT protocol is to be approved by BN well in advance.

## RESTRICTED

d. During FAT, tests will be carried out to fulfill the required condition mentioned in technical specification of the offered system. Various tests for checking performance are to be carried out and recorded. After FAT, a joint test report will be prepared and signed by both the seller and buyer's representative.

e. Location of FAT to be mentioned.

30. **Local Training.** A group of operators/ technicians are to be trained locally in Bangladesh for 03 (Three) working days by the Manufacturer's Engineer on completion of installation and Test/Trial. Cost of air fare (to and from Bangladesh (installation site)), accommodation, food and internal transportation (to and from work site and hotel) of the Manufacturer's engineer will be borne by Supplier. The cost of local training is to be quoted with the offer separately.

a. **Training Objective.** Objective of training is to learn about the functionality and maintenance of newly installed Tracking Trainer System.

b. **Training Contents.** The contents of the training should include following (but not limited to):

- (1) System composition, configuration, principle of operation and troubleshooting.
- (2) Data format and protocol of sensor.
- (3) Software installation, operation and configuration for smooth conducting of all the tests.
- (4) Theoretical concept and procedure of tests (practical).
- (5) Repair and maintenance.

31. **Installation, Test/ Trial and Acceptance.**

a. **Installation Site.** Onboard BN DOCKYARD at Chattogram Naval Area.

b. Site Acceptance Test (SAT) and installation shall be conducted at BN premises. SAT protocol shall be forwarded to BN for approval. BN may provide some facilities for the test.

c. On completion of satisfactory Test/ Trial and commissioning, an acceptance certificate will be provided by BN.

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. Incase of CFR/CPT, the supplier shall carry the items from sea port/ air port (as applicable) to NSD Chattogram at the their cost and risk of supplier.

33. **Shipment.**

a. **Source of Raw Material.** To be mentioned.

b. **Source of Supply.** The source of supply of the offered systems are to be mentioned. It should be from the country of manufacturer or country of origin.

c. **Port of Shipment:** To be mentioned. The port of shipment is to be from the country of manufacturer or country of origin.

d. **Consignee.** The supplied item shall be the following consignee:

The Commanding Officer  
Naval Stores Depot  
New Mooring, Chattogram,  
Bangladesh  
BIN-002349278-0503

or Officer In Charge  
Naval Stores Sub Depot Dhaka  
Naval Unit Khilkhet  
Namapara, Dhaka-1229, Bangladesh

## RESTRICTED

- e. All items are to be brand new and to be delivered in seaworthy packing to ensure safe transit by sea. Certificates in this regard are to be provided during delivery.
- f. All packages are to 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. 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/ CPT 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 Differential Transfer Alignment System 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 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.

35. Validity. The offer is to remain valid till 30 June 2026.

36. 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/ CPT value being the value of the supplied goods, payment shall be made as under:

a. 1<sup>st</sup> Instalment. 80% of CFR/ CPT 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.

RESTRICTED

- (2) 'Supplier's Signed Commercial Invoice' for (freight/ services amount to be shown separately (if applicable)) representing 80% of CFR/CPT 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. **2<sup>nd</sup> Instalment.** 20% of CFR/CPT value shall be paid **after successfully commissioning the system** and on submission of the following documents to the bank:

- (1) 'Supplier's Signed Commercial Invoice' for representing 20% of CFR/CPT value as stated in the contract.
- (2) 'Final Acceptance Certificate' issued by the PURCHASER after successful completion of installation, integration with related ship borne equipment, HAT, SAT and commissioning of system.
- (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. **Instalment of FAT, Training and Services.**

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

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

(2) **Local Training.** 100% cost of Local Training shall be paid **after successful completion of local training** and on submission of the following documents to the bank:

- (a) 'Local Training Completion Certificate' Signed by the PURCHASER for the successful completion of the Local Training in Bangladesh.
- (b) 'Supplier's Signed Commercial Invoice' for 100% of Local Training value as stated in the contract.

(3) **Test/ Trial and Acceptance.** 100% cost of Test/ Trial and Acceptance shall be paid **after successful completion** of final Test/ Trial and Acceptance and on submission of the following documents to the bank:

- (a) 'Final Test/ Trial and Acceptance' Signed by the PURCHASER for the successful completion of Final Test/ Trial and Acceptance in Bangladesh.
- (b) 'Supplier's Signed Commercial Invoice' for 100% of Test/ Trial and Acceptance value as stated in the contract.

RESTRICTED

37. **Price.** Price of the each item of the total offer is 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 to be quoted without import duties.

38. **Compliance Statement.** A clear and complete compliance statement of the tender supported by the product catalogue and Brochure with necessary specification and drawing/ diagram is to be submitted for evaluation of the quotation. Incomplete compliance statement will attribute to cancellation of the offer. If any clause of this specification does not commensurate with offered item practically, the deviation has to be spelt out clearly.

