



# KHULNA SHIPYARD LIMITED

## BANGLADESH NAVY, KHULNA

PHONE : 02-4411-0990, FAX : 880-41-720404

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BABE (F)-32/2021-2022/

29 September 2021

Dear Sir

### **INVITATION FOR QUOTATION OF OPTICAL EMISSION SPECTROMETER**

1. Khulna Shipyard Limited will procure 01 complete set **Optical Emission Spectrometer** (attached specification – 08 Page) as per following terms & condition:
  - a) Please submit your offer as a local supply items. Offer should include supply of materials at KSY site including custom duty, local vat & tax etc.
  - b) Payment: 100% payment will be made after receiving the material at KSY and satisfactory acceptance after deducting of VAT and TAX.
  - c) Items to be delivered within 90 days from the date of Purchase Order at KSY site.
2. Offer should be submitted within 12/10/2021 (1500 Hours) by e-mail ([contact@khulnashipyards.com](mailto:contact@khulnashipyards.com), [oiocomf.ksy@gmail.com](mailto:oiocomf.ksy@gmail.com)) or close envelop.
3. **1%** (one) Bid Bond/Earnest Money of the total quoted value must be submitted with the offer. Bid Bond may be Pay Order / Bank Guarantee in favour of Khulna Shipyard Limited, Khulna.
4. 10% Performance Guarantee (PG) is to be submitted before issuance Purchase Order. This PG will be released after receiving the material and satisfactory acceptance by KSY.
5. Guaranty for warranty : A Bank Guarantee/Pay Order (10% of total contract value) will be submitted after the acceptance of the material for the period of warranty.
6. Offer Validity: 45 Days from Tender Opening Date.

Yours sincerely

SK. SHAH MOSHIUR RAHMAN  
Manager Commercial  
For Managing Director

## Tender Specification of Optical Emission Spectrometer (Arc/Spark-OES)

1. **Name of the Equipment:** Optical Emission Spectrometer (Arc/Spark-OES)
2. **Purpose:** This Optical Emission Spectrometer (Arc/Spark-OES) will be used to determine the chemical composition of Ferrous Metals including Low Alloy Steel, Cast Iron, Cr/Ni Stainless Steel, High Mn Steel, High Cr Cast Iron, High Ni Cast Iron, High Speed Tool Steel and Non-Ferrous Metals including Copper Base Alloys (Gun Metal, Brass and Bronze), Zinc Base Alloys and Aluminium Base Alloys and Tin Base Alloys.
3. **Quantity:** 01 complete set with all standard and necessary accessories and attachments.
4. **Country of Origin:** To be mentioned.
5. **Manufacturing Country:** To be mentioned.
6. **Manufacturer:** To be mentioned (Name and full address to be mentioned).
7. **Year of Manufacture:** 2021. The item should be brand new and original.
8. **Certificate/Document of Authentication:** The local supplier must provide following original certificate(s)/ document(s) with the offer/ quotation of items as regard to be genuine of source and item(s) in order to establish chain of links from the original source to supply items
  - a. One certificate/ document by the manufacturer in favour of the supplier.
  - b. Two certificates/ documents, one by the manufacturer to authorized agent and other by the authorized agent to supplier.
9. **Scope of Supply:** The scope of supply is to include the followings:
  - a. Main items (01 x Optical Emission Spectrometer complete with all items necessary for immediate operation without the requirement of any other items (as per paragraph 12).
  - b. Optional items, tools (As per paragraph 16).
  - c. Spare parts (As per paragraph 18).
  - d. Installation of Optical Emission Spectrometer (As per paragraph 19).



- e. Documents (User manual, Parts Identification List, Maintenance Manual, Spare Parts Catalogue etc; as applicable) and Certificates (As per paragraph 20 and 21).
  - f. Inspection, Test/Trial and acceptance services (As per paragraph 22).
  - g. Operation and Maintenance Training (As per paragraph 23).
  - h. Warranty services and Guarantee (As per paragraph 24-25).
10. **Standard:** The Optical Emission Spectrometer must be designed and manufactured according to the requirement of CE/ASME/ EN/ FEM/HMI/ ISO /CMAA/ DIN/SIM/ Equivalent International Standard.
11. **Operating Environment:** The environment under which the Optical Emission Spectrometer will be operated and their performance will be measured as under:

**Ambient Conditions.**

(1)	Air temperature	0°C ~ 45°C
(2)	Relative humidity	Upto 95%(Non-condensing)
(3)	Location	In-house

12. **Technical Specifications:**

**a. General:**

(1)	Type	Optical Emission Spectrometer (Arc/Spark-OES)
(2)	Brand	To be mentioned.
(3)	Model	To be mentioned.
(4)	Ability to Determine the Chemical Composition of Ferrous Metals including	Low Alloy Steel, Cast Iron, Cr/Ni Stainless Steel, High Mn Steel, High Cr Cast Iron, High Ni Cast Iron, High Speed Tool Steel.
(5)	Ability to Determine the Chemical Composition of Non-Ferrous Metals including	Copper Base Alloys (Gun Metal, Brass and Bronze), Zinc Base Alloys, Aluminium Base Alloys and Tin Base Alloys.

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**b. Items List:**

No.	Item	Specifications	Unit	QTY
1	Optical Emission Spectrometer		Set	1
2	Business computer	Standard configuration with full compatibility with spectrometer, software, printer etc	Set	1
3	Software	Easy operation with intuitive user interface. Capable of making customized analysis report, Spectra etc. Software is to be provided in CD with reusable format. Software is to be pre-loaded with library for accurate grade ID of ASTM, AISI, DIN, JIS, GB, EN.		
4	Printer	Standard configuration	Set	1
5	Flue gas pipe	Pc	1	
6	Flue gas filter	2 filter bottle and accessories	Set	3
7	Argon gas pressure reducing valve	Set	2	
8	Quick connector	Pc	1	
9	Argon gas pipeline	M	2	
10	Ethernet cables	Pc	1	
11	Three core power line	Pc	1	
12	Calibration samples	Set	1	
13	Tools Package for Daily Maintenance	Set	1	
14	Spectrometer manual	Set	1	
15	Spare parts and tools	Set	1	
16	Safety gears for operator	All necessary safety gears like, shield, glass, globe, aprons etc.		

**c. Parameter:**

Following index is to be submitted with offer:

Item	Index
Optical system	
Optical structure	To be mentioned.

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Room temperature	To be mentioned.
Wavelength range	To be mentioned.
Focal length	To be mentioned.
Grating line	To be mentioned.
First order spectral line dispersion rare	To be mentioned.
Detector	To be mentioned.
Average resolution ratio	To be mentioned.
<b>Excitation table</b>	
Gas	To be mentioned.
Argon flow rate	To be mentioned.
Electrode	To be mentioned.
Purge	To be mentioned.
Make up	To be mentioned.
Analyze the gap	To be mentioned.
<b>Excitation light</b>	
Type	To be mentioned.
Frequency	To be mentioned.
Discharge current	To be mentioned.
Special technology	To be mentioned.
Pre -combustion	To be mentioned.
Processor	To be mentioned.
<b>Data collection system</b>	
Interface	To be mentioned.
Power	To be mentioned.
<b>Others</b>	
Base	To be mentioned.
Power consumption	To be mentioned.
Working temperature	To be mentioned.
Working humidity	To be mentioned.
Dimension	To be mentioned.
Weight	To be mentioned.

13. **Safety Arrangements:** All standard safety arrangements including the following are to be supplied with Optical Emission Spectrometer:

- a. Optical Emission Spectrometer should have adequate and reliable safety interlocks / devices to avoid damage due to operator's malfunctioning or mistakes.
- b. Optical Emission Spectrometer functions should be continuously monitored and alarm / warning indications through lights / alarm number with messages (display and panels) should be available. A detailed list of all alarms /

indications provided on Optical Emission Spectrometer should be submitted by the supplier.

- c. Emergency switches at suitable locations as per international norms should be provided

14. **Standard and Necessary Accessories:** Main item (Optical Emission Spectrometer) with manufacturer recommended all standards and necessary accessories and attachments (price included in the FOB value) for smooth and efficient operation of the Optical Emission Spectrometer without the requirement of any other items (attachments, accessories, consumables, etc) to be supplied with Optical Emission Spectrometer. A list of standard and necessary accessories should be submitted with the offer.

15. **Optional Items:**

Optional item	Qty
High purity argon gas (pure $\geq$ 99.999%)	1 bottle
Air Condition	1 set
High precision magnetic saturation voltage stabilizer (1KVA)	1 set
Argon purifier	1 set
Samples grinder (ferrous metals) or Mini lathe (non-ferrous metals)	1 set
Type sample	X pieces

16. **Standard Tools:** A list of Standard Tools for maintenance and protection of the Optical Emission Spectrometer will be provided with the quotation (price included in the FOB).

17. **Spare Parts:** A list of recommended fast moving spare parts with item wise price (price not included in the FOB value) for Spectrometer are to be provided with the quotation.

18. **Installation:** Optical Emission Spectrometer should be supplied on turnkey basis by the manufacturer/supplier including all required items, design, drawings etc. The supplier should carry out the fully installation and commissioning (including required tools and equipment) at Khulna Shipyard Ltd in Bangladesh.

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**19. Documents:** Two (02) sets of following documents (in English language) are to be supplied with the Optical Emission Spectrometer:

- a. **Instruction Manual.** It should contain the following:
  1. Detailed particulars and specifications of the Optical Emission Spectrometer and their components.
  2. Operation and safety instructions.
  3. Maintenance instructions including maintenance schedule for Optical Emission Spectrometer and its accessories.
  4. Instructions regarding periodical tests and trials.
- b. Workshop level repair manual for the Optical Emission Spectrometer and its components.
- c. Spare parts catalogue for the Optical Emission Spectrometer and its components.
- d. Electrical and electronic circuit, fault finding flow chart etc.
- e. Executive program and necessary software of Spectrometer.

**20. Certificates:** The manufacturer must give a certificate, which will form a part of the contract that all the mechanical, electrical and electronic components of Optical Emission Spectrometer and its control system are currently in operation.

**21. Inspection, Test, Trial and Acceptance.**

- a. The manufacturer shall carryout inspection and test of the relevant components as per CE/ASME/ DIN / EN/ ISO standard before shipment and provide certificate to that effect as per paragraph 21.
- b. The supplier's representative will carry out test and trial ~~of the~~ at the buyer's premises at Khulna Shipyard Ltd (KSYL), Khulna in presence of the buyer's representative and handover the Optical Emission Spectrometer in fully operational condition to the KSYL authority. A test/ trial report, in this regard, will be signed jointly by the representative of supplier and the buyer.
- c. All expenditure including of airfare, boarding, lodging, man-hour cost etc. for the manufacturer's technical person(s), during his stay in Bangladesh, is to be borne by the manufacturer/ supplier.

**22. Operation and Maintenance Training:** After completion of satisfactory test and trial, the supplier's engineer will provide proper training to Optical Emission Spectrometer on the following fields for a period of at least 05

working days. All expenditures including Air-fare, boarding, lodging, pocket money, etc. for the supplier engineer shall be borne by the supplier.

- a. Software installation to control panel, Programming for Optical Emission Spectrometer etc.
- b. Periodic maintenance and troubleshooting for Optical Emission Spectrometer and other supplied equipments.
- c. Complete operation of the Optical Emission Spectrometer.

**23. Warranty:**

- a. Warranty for trouble free operation will be provided by the principal/ manufacturer for all the supplied items for a period of at least 12 months from the date of acceptance by the buyer.
- b. During the warranty period, if any item / equipment remains non-operational for any action pending by the supplier the warranty period will be automatically extended by the same period.
- c. The warranty should cover all parts and labour (including service engineer's cost) throughout the warranty period.
- d. For warranty repair/ replacement, the supplier will collect the defective items from buyer's premises and re-supply the same to the collecting place after warranty repair/ replacement.

**24. Guarantee:** The manufacturer will guarantee to supply the spare parts for at least 10 years at reasonable price. Yearly increase of price of spares should not be more than 5% of the price list for spares provided with the quotation.

**25. Delivery:** The supplied items are to be delivered within 06 months from the date of signing the contract to the following address:

**Khulna Shipyard Limited (KSY)  
Bangladesh Navy  
Khulna-9201  
Bangladesh.**


**26. Validity of Offer:** The offer should remain valid for at least 06 months.

**27. Condition for Acceptance of Quotation:** Quotation has to have supporting documents (all required certificates as mentioned before, booklets, leaflet, catalogue, brochure etc) having detailed particulars of the Optical Emission Spectrometer. If detailed information regarding specifications, maker's books and catalogue about the same model of the Spectrometer quoted any items, spare parts accessories, etc are not provided; the quotation will not be accepted.





**28. Compliance Statement:** A compliance statement (in a tabular format) 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 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 does not commensurate with offered the Optical Emission Spectrometer, the deviation has to be spelt out clearly.

  
OIC (Foundry)  
Member Secretary

  
OIC (Out Door)  
Member


  
OIC (L)  
Member

  
DGM (D&P)  
Member

  
DGM (SB)  
Member

  
12/9/2021  
DGM (Engg)  
Member

  
DGM (L)  
Member

  
13/09/21  
GM (Production)  
President