GOVERNMENT OF PAKISTAN
PAKISTAN ORDNANCE FACTORIES
**TENDER ENQUIRY**

To
M/s _____
_____

Dear Sirs,

Reference: TENDER ENQUIRY NO. **03-FP-DS-Capt-56 dated 16-11-2026.**

You are requested to submit quotations for the items(s) noted in the Schedule to the Tender. Offers should be sent duly sealed in an envelope. Please note the following instructions for filling the tender: -

1. **SUBMISSION OF TENDER**

1.1 Tenders will be opened at **1230 hours** on **06-01-2027** at Bid Centre Adjacent to Reception Hall, POF Wah Cantt and must reach at below mentioned address before 30 Minutes of opening time. The tender received late will not be entertained. You may witness the opening of the tender if you so desire. If a representative is deputed, he should bring CNIC in original & a letter of authority from you.

1.2 Only one tender should be included in one envelope. The outside of the envelope should be inscribed with: -

Tender Enquiry No: **03-FP-DS-Capt-56 dated 16-11-2026.**
Tender to be opened on: **06-01-2027**
Address as follows: - **BID CENTRE ADJACENT TO RECEPTION HALL, POF WAH CANTT (DIRECTOR SERVICES),**
Tele: +92-51-9055-21090
Fax: +92-51-9271400, 9314100

1.3 If envelope does not indicate reference of T.E or received late the same may be returned un-opened.

1.4 Tender "By Hand" can be delivered at Bid Centre, adjacent to Reception Hall, POF Wah Cantt.

1.5 Offers received through email / fax are not acceptable.

2. **GENERAL INSTRUCTIONS REGARDING PREPARATION OF QUOTATIONS**

2.1 For materials, the prices should be filled in column 5 and delivery date in column 6 of the schedule to this Tender Enquiry. The undertaking should be signed at the bottom of the Schedule which shall form the Quotation. You may use a separate sheet if necessary.

2.2 For Plant and Machinery, you are required to quote in two parts: -

Part I **"TECHNICAL OFFER"** It should exclusively give technical details and literatures/brochures of the offered plant, machinery and equipment; validity date; delivery schedule; and signed undertaking given on the schedule to this Tender Enquiry. It must not indicate price, costs etc.

Part II **"COMMERCIAL OFFER"** It should indicate the commercial terms e.g., price, terms of payment, mode of payment, mode of supply.

Each part should be placed in a separate sealed cover. The envelopes should be inscribed with: Part I "Technical Quotation without price" and Part II "Commercial Quotation with Price."

2.3 The quotation must remain valid for, at least **120 days** from the date of opening of commercial tenders, extendable if so desired.

2.4 The quotation should hold good for any reduced or enhanced quantities without notice.

2.5 In the event of non-acceptance of offer, intimation may be given to the tenderers on their request.

2.6 Conditional offers or alternative offers are likely to be ignored.

2.7 Quotations should be based on F.O.B. The consignment will be shipped through Pakistan National Shipping Corporation (PNSC). In case there is no PNSC service in the country of shipping, please quote on C & F basis. The air & sea freight should be indicated separately. Insurance premium should not be included in the quoted price. However, where insurance is considered necessary, advice to that effect should be given in the quotation.

2.8 Submission of the offer through an agent in Pakistan should be avoided. In case it is considered inevitable, the agent's quotation must invariably be accompanied by the original proforma invoice from the principals/ manufacturers.

2.9 Country of origin and port of shipment to be stated.

2.10 The offer of principal must clearly indicate whether the rate quoted is inclusive of agent's commission, and if inclusive rate of commission included be specified.

2.11 Suppliers will render necessary information regarding hazardous effects on environment, of the materials/products supplied by them, in their quotations and shipping/Dispatch documents.

2.12 If the requisite information is not furnished on the T.E form or offer received is not in conformity with the requirement of the T.E such offer shall be ignored.

3. **PRE-SHIPMENT INSPECTION**

3.1 Pre-shipment inspection of boilers & accessories will be carried out by a team of 05 x POF Officials for 05 x working days at OEM / manufacturer premises before dispatch of store. All expenditure in respect of PSI including air tickets, boarding & lodging, travelling & daily allowances will be borne by the purchaser.

3.2 100% inspection as per specs & standards will be considered acceptable.

3.3 Inspection facilities such as test bed, tools, test equipment etc. will be provided by the supplier in accordance with the relevant specification during PSI.

3.4 Rejected store will be removed and replaced with acceptable store by supplier at his own expense within time period agreed by purchaser and supplier.

**3.5** PSI will be carried out as per scope attached as **"Annexure-C.**

4. **TENDER SAMPLE**

Where required offer must accompany tender sample strictly according to the description given in tender enquiry. Offer not accompanied by tender sample will NOT be entertained excepting the established and reputable firms who have either previously satisfactorily supplied the same or similar stores or have submitted an acceptable sample thereof against previous T.E

5. **BID MONEY**

Foreign bidders are bound to provide bid securing declaration (As per enclosed format) alongwith bid

6. **ACCEPTANCE OF OFFERS**

6.1 The procuring agency may reject all bids or proposals at any time prior to the acceptance of a bid or proposal. The procuring agency shall upon request communicate to any supplier or contractor who submitted a bid or proposal, the grounds for its rejection of all bids or proposals, but is not required to justify those grounds.

6.2 Procuring agency shall incur no liability, solely by virtue of its invoking sub-rule (1.1) towards suppliers or contractors who have submitted bids or proposals.

6.3 Notice of the rejection of all bids or proposals shall be given promptly to all suppliers or contractors that submitted bids or proposals.

7. **PERFORMANCE BOND**

(a) The successful bidders will provide Performance Bond at the rate up to 10% of F.O.B. value of contract in favour of the Controller Military Accounts (CMA) POF Wah Cantt. The Performance Bond will be furnished in the form of Call Deposit Receipt (CDR) from any scheduled Bank in Pakistan or an unconditional bank guarantee on prescribed Performa covered by any scheduled bank in Pakistan. The Performance Bond shall be furnished within 45 days from the date of opening of Letter of Credit. It shall be valid for a period of 12 months after the date of expiry of letter of credit. If the Performance Bond is not furnished within the prescribed time of 45 days, the Purchaser reserves the right to cancel the contract and make other arrangements for purchase of the stores at the risk and expense of the Supplier.

i. Cancel the contract and make other arrangements for purchase of the stores at the risk and expense of the Supplier.

(b) No Performance Bond will be required if the total FOB value of the contract is less than US$ 50,000 and contract is placed directly on the foreign Supplier.

8. **FAILURE TO SUPPLY THE STORES**

All deliveries must be completed by the specified date. If the failure to deliver the stores within the scheduled time should have arisen from "Force Majeure", which the Purchaser may admit as reasonable ground for further time, he will allow such additional time as he may consider to have been required by the circumstances of the case. Otherwise, he will be entitled, at his discretion, to cancel the contract; and/or, claim liquidated damages up to 2% but not less than 1% of the contract price of the items and their quantities for each and every month or part of a month, beyond the specified delivery date, during which these may not be delivered, subject to a maximum of 10% of the total contract value of particular store which remained unsupplied either in part or in full or, to purchase, from elsewhere, the unsupplied stores at the risk and cost of the Supplier.

9. **PAYMENT**

9.1 Payment will normally be made by means of irrevocable letter of credit.

9.2 70% payment will be released on submission of despatch documents to Bank including Acceptance certificate signed by PSI team, confirming satisfactory Pre-shipment inspection.

9.3 while balance 30% payment will be released upon final acceptance the following certifications signed by inspection team nominated by purchaser.

i- Successful installation / commissioning at POF premises.

ii- Successful completion of FAT

9.4 All Bank charges incurred in Pakistan in connection with the establishment of L.C. will be borne by the Purchaser, whereas all Bank charges incurred in connection with drawing of payment including charges for confirmation of L.C. by the advising Bank/Foreign Bank will be borne by the Supplier.

10 **SECURITY OF INFORMATION**

The tenderer and his employees must not communicate any information relating to the sale/purchase of stores under this enquiry to any person other than the manufacturer or to any press or agent not authorized in writing by POFs to receive it. Please return the Schedule to the Tender duly signed by the specified date, along with the specification's drawings etc. if any, enclosed herewith - even if you are unable to quote.

**WARNING**

In case the firm abstain from making offers or fail to return/acknowledge the tender form by the specified date on three consecutive occasions, no further tender enquiry may be issued to them and their names would liable to be removed from the approved list.

Yours faithfully,



**DIRECTOR SERVICES**
Pakistan Ordnance Factories
Wah Cantt
Tele + 92-51-905524339
Fax + 92-51-9271400 & 9314100
e. mail: dirser.pof@gmail.com
gmppc_services@pof.gov.pk

## PAKISTAN ORDNANCE FACTORIES

**SCHEDULED TO TENDER NO. 03-FP-DS-Capt-56 dated 16-11-2026.**

(1) **FOR MATERIALS**

| (1) | (2) | (3) | (4) | (5) | | (6) |
|---|---|---|---|---|---|---|
| Item No. | Description with Specs etc. | Unit | Qty | Price per unit FOB / C&F basis | | Delivery date |
| | | | | In figures | In words | |
| i. | Complete designing, manufacturing, inspection, supply, installation, testing & commissioning of 2 x 30TPH Water-Tube Superheated Steam Boilers. | No | 02 | | | |

(2) **For Plant & Machinery:**
Specification: - attached as Annexure-A

(3) **Special Conditions:**

a. **LC will be established against OEM only.**
b. Local agent / supplier must provide authorization letter of OEM along with Technical Offer.
c. **Offer should be on FOB basis. However, for considering C&F or CIF Karachi basis, sea freight & insurance charges should be indicated separately. Moreover, Civil Works & Installation & Commissioning mentioned separately in case of offer are on FOB, C&F or CIF Karachi.**
d. **Authorized dealer of OEM having backup services (OEM authorized maintenance workshop and spare parts godown) in Pakistan is eligible to quote.**
e. Manufacturers must have valid international certification regarding equipment & spares i.e. CE marked or any equivalent standard.
f. **The model should be out of latest production.**
g. No reconditioned / used part / component will be acceptable. In such case, firm will be responsible to replace it with new one.
h. **All Chinese & Hong Kong based firms must quote rates in RMB (Chinese Yuan) and rate in other currency will not be entertained.**
i. Repair / maintenance period (in case of breakdown during warranty / guarantee) will not be counted in Warranty / Guarantee period.
j. Population list of similar products in Pakistan may be shared along with technical offer.
k. Local bidders who are interested to quote on F.O.R Wah Basis should follow the instructions as per annexure-B.
l. **Compliance sheet (point-to-point comparison) to T.E is also essentially required as per following format:**

| S # | POF SPECIFICATION | FIRMS REMARKS / OFFERS. |
|---|---|---|
| 1. | | |

(4) **Undertaking**

Should our offer be accepted, we hereby undertake to supply the stores/render the services contracted on the basis of General Conditions of Contract embodied in Form POF 1282 (for foreign bidders) and form POF-1281 (for local bidders), and to deposit the performance bond within the prescribed time, failing which it will constitute a breach of contract, and POF will have the right to purchase the stores/services elsewhere at our risk and cost.

Place_____
Date_____

Signature of the Tenderer _____
Name_____
Position_____
Address_____
Income Tax G.I.R No. _____
Official stamp.

## Technical Specifications

| | |
|---|---|
| **1. Scope of Supply:** Complete designing, manufacturing, inspection, supply, installation, testing and commissioning of **2 x 30 TPH Water-Tube Superheated Steam Power Boilers**. The scope includes but not limited to following: | |
| 1.1 | Two fully independent boilers, each with its own BMS, PLC, HMI and control panels |
| 1.2 | A master PLC & HMI panel to monitor, control, and optimize both boilers for combined operation and load management |
| 1.3 | Interfacing with plant utilities, fuel systems and steam header |
| 1.4 | Hot Water Tank with De-Aerator (01 No for both boilers) |
| 1.5 | Combined steam header with valves to connect with existing system |
| 1.7 | Condensate Water from steam turbine Return Loop to hot water tank |
| 1.8 | Boilers registration by Punjab Boiler Board will be responsibility of the supplier |
| **2. Basic Performance Parameters & Ratings:** | |
| 2.1 | **Rated Superheated steam capacity / boiler:** 30 TPH Net (± 2 % tolerance) |
| 2.2 | **Rated operating steam pressure:** 27 bar (± 2 % tolerance) |
| 2.3 | **Rated steam temperature:** superheated at 405 ± 5 °C |
| 2.4 | **Fuel:** Natural gas |
| 2.5 | Refractory / Insulation: Suitable material to withstand ≥ 1000 °C |
| 2.6 | **Design efficiency:** ≥ 85% at Maximum Continuous Running (with GCV = 1040 ± 10 BTU / SCF). Efficiency guaranteed at MCR (80% of total capacity). |
| 2.7 | Dryness fraction of steam ≥ 99%. |
| 2.8 | Design Life > 20 years |
| **3. Boiler Type & Construction:** | |
| 3.1 | **Type:** Bi Drum Water tube boiler |
| 3.2 | Boilers to meet ASME Section I / EN 12952 latest recognized code. All materials should be certified and traceable with heat number. Surface-welded membrane walls where applicable. Corrosion resistant metallurgy for superheater / tubes as per design. Radiographic testing of 100% of all longitudinal and circumferential welds of drums and headers. |
| 3.3 | **Design codes & standards:** Supplier will ensure full compliance with latest international standards (ASME, BS, ISO) and all equipment must comply with local statutory requirements (e.g., Pakistan Boilers & Pressure Vessels Act 2002)<br>• ASME Section I for design & fabrication.<br>• ASME Section IX for welding procedures and welder qualifications.<br>• ASTM A-516 Gr. 70 for boiler drums & pressure vessels.<br>• ASTM A-213 T22 for superheater & A-192 / A210 Gr A1 for generation tubes.<br>• NFPA 85 (Boiler and Combustion Systems Hazards Code).<br>• EN 676 for gas burners<br>• IEC 61508/61511 for functional safety (Safety Instrumented Systems).<br>• ASME STS-1 or BS EN 13084 for stack / chimney<br>• ASTM D1193 T1 for boiler water<br>• ASME Consensus on Operating Practices for Boiler Water Chemistry<br>• ASME Section I PG-67 and API 526 / 527 for safety relief valves.<br>• IBR-certified or ASME "S" stamped.<br>• OSHA 29 CFR 1910.95 (Noise control) and WHO guidelines for community noise.<br>• ISO 9001 (quality system of manufacturer).<br>• ASME Section V (NDT).<br>• EN 10204 3.1 (material test certificates).<br>• OSHA / IEC 61511 / IEC 61508 compliance for safety instrumented systems.<br>• IEC 60204 (Safety of machinery – electrical equipment).<br>• IEC 61508 / 61511 (Functional safety).<br>• IEC 61850 (communication for substation/automation).<br>• IEEE 519 (harmonics).<br>• ISA S5.1 (Instrumentation symbols and identification).<br>• ISO 14122 Series for Access platforms and safety railings |

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| 3.4 | **Steam Drum** (01 No for each boiler) | |
| | 3.4.1 | ASTM A-516 Grade 70, Material: **A-516 Gr.70** or equivalent. Drum internals should ensure dryness fraction ≥ 99%. |
| | 3.4.2 | 100% radiographed, stress relieved **and hydro tested** |
| | 3.4.3 | Drum will be provided with dish **ends, two safety** valves & two water gauge glasses (transparent) as per requirement and elliptical **manholes on both** ends for maintenance / inspection purpose |
| | 3.4.4 | Sufficient size of steam drum for **steam** accumulation to prevent water flow towards output i.e Steam Turbine |
| 3.5 | **Water Drum / Mud Drum** (01 No for each boiler) | |
| | 3.5.1 | ASTM A-516 Grade 70 Material: A-516 Gr.70 or equivalent |
| | 3.5.2 | 100% radiographed stress relieved and hydro tested |
| | 3.5.4 | Suitable internal space for cleaning and maintenance by manpower |
| 3.6 | **Draft Fan**: Fans with speed controls VFD driven | |
| 3.7 | **Super Heater**:<br>Material: A-213 T22 with appropriate bypass & safety controls. | |
| 3.8 | **De-Super Heater:** (As per design requirement) | |
| 3.9 | **Economizer:**<br>Material: A-210 Gr. A1<br>Fins type (01 No for each boiler) | |
| | 3.9.1 | Economizer as required to meet guaranteed efficiency |
| | 3.9.2 | Easy access for maintenance |
| 3.10 | **Chimney / stack**:<br>As per plant & environmental design parameters comply with ASME STS-1. Properly heat insulated. | |
| 3.11 | **Steel structure and platform ladders:** As per clause 3.3 & design requirement | |
| 3.12 | **Air and Flue gas ducting:** As per clause 3.3 & design requirement | |
| 3.13 | **Flush tank:** 01 No for both boilers | |
| 3.14 | **Flow meters:** with totalizer for steam, feed water and fuel (Natural gas)<br>01 No for each boiler | |
| 3.15 | **Explosion (safety) doors:** Minimum 01 x for each boiler | |
| 3.16 | **Blowdown tank** with cooling and dilution system, continuous blowdown control w.r.t TDS, pH etc. | |
| 3.17 | **Fuel handling equipment:** Gas train complete with filters, gas shut off valves, pressure regulators etc as per fuel where required. Double block and bleed valves on main gas train as per NFPA-85. | |
| 3.18 | **Steam Header:** Combined Steam Header for both boilers and connectivity with existing system with valves. Properly insulated and cladded header and connecting steam lines. Material for headers A-106 B | |
| **4. Hot Water Tank with De-Aerator (01 No for Both Boilers)**<br>Spray type pressurized, Feed water outlet temperature 105 °C, Proper oxygen removal, Easy access for maintenance. Material = A-36 shell, SS304/316 internals (spray valves). Properly insulated and cladded. | | |
| 4.1 | **Electric feed water pump** | |
| | 4.1.1 | 01x Duty & 01x Standby for each boiler |
| | 4.2.1 | Along with ampere meter, flow meter, compatible VFD, vibration and temperature sensor. |
| | 4.3.1 | Make: KSB, Grundfos, EU or equivalent |
| 4.2 | **Turbo feed water pump** (As per requirement of water for both boilers), Qty.01 No | |
| | 4.2.1 | Controlled by PLC |
| | 4.2.2 | Along with vibration and temperature sensor |
| | 4.2.3 | Pump Make: KSB France, Grundfos, EU or equivalent |
| 4.3 | **Lift pump** (01x Duty & 01x Standby) | |
| | 4.3.1 | Vibration and temperature sensor. |
| | 4.3.2 | Ampere & flow meter |
| | 4.3.3 | Make: KSB, Grundfos, EU or equivalent |
| 4.4 | **Chemical dosing:**<br>The supplier will provide a complete, automatic chemical dosing system(s) and accessories for feedwater, boiler water, blowdown control, condensate treatment and RO / CIP dosing. The system will ensure compliance with specified water / steam purity for condensing turbine operation and protect against scaling, corrosion, foaming and carryover. The system shall include dosing skids, pumps, storage tanks, containment, instrumentation, PLC integration and interlocks. | |

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| | 4.4.1 | Supplier will state exact chemicals, **dosing rationale, expected doses** (mg/kg or mL/m³), and MSDS for each chemical proposed.<br>• Oxygen scavenger for feedwater / condensate<br>• Alkalinity control<br>• Scale control<br>• Polymeric antiscalant / dispersant for feedwater and RO protection<br>• Cartridge filters and antifoulants / CIP chemicals for RO system<br>• Anti-foaming / carryover inhibitor<br>• Condensate polishing / treatment | |
| | 4.4.2 | **Dosing skid & pumps** | |
| | | 4.4.2.1 | Each chemical shall be dosed by a positive displacement metering pump (diaphragm or magnetically driven) with stroke adjustment and VFD compatibility. Quantity: 01 duty & 01 standby pumps for each chemical. |
| | | 4.4.2.2 | Pumps shall be of materials compatible with the chemical handled (PVDF / PTFE wetted parts or SS316L where appropriate). Pump skid shall include suction / discharge strainers, non-return valves, pulsation dampeners, pressure relief and local calibratable flow meter with totalizer and pulse output for PLC. |
| | | 4.4.2.3 | Each pump shall have on-site manual override, automatic mode, and remote PLC control. Motor starters and local isolators shall be provided. |
| | 4.4.3 | **Storage tanks & containment** | |
| | | 4.4.3.1 | Chemical tanks shall be sized to provide minimum 10 days continuous operation for normal service, unless otherwise agreed. |
| | | 4.4.3.2 | Level indicators with high / low alarms and pump interlocks shall be provided. |
| | | 4.4.3.3 | Tanks shall be of suitable material (HDPE / FRP / lined carbon steel) as per chemical compatibility; sight glasses, venting with scrubber where required and access platforms shall be provided. |
| | 4.4.4 | **Instrumentation & online monitoring** | |
| | | 4.4.4.1 | Online instrumentation shall include pH, conductivity, cation conductivity (or equivalent), dissolved oxygen (DO) and TDS transmitters where applicable. Instruments shall provide 4–20 mA/HART outputs and be integrated into slave and Master PLC. |
| | | 4.4.4.2 | Automatic blowdown control based on TDS with continuous blowdown control valve and totalizer; blowdown control shall be integrated with dosing logic. |
| | | 4.4.4.3 | Chemical results shall be displayed for all key parameters and alarms for high/low chemical level, pump failure, out-of-range chemistry and instrument faults. Installation of pressure and temperature gauges where required. |
| | 4.4.5 | **Control, interlocks & PLC integration** | |
| | | 4.4.5.1 | Dosing system shall be PLC controlled with dosing rate calculation based on flow (m³/h) and recipe based setpoints. All dosing pumps and instruments must have status, alarms and remote control via the Master PLC / HMI. |
| | | 4.4.5.2 | **Interlocks:** Critical water chemistry alarms (e.g. high TDS, low feedwater flow) shall generate alarms and escalate to inhibit boiler firing / auto-trip logic. The supplier shall provide alarm priority matrix. |
| | | 4.4.5.3 | Dosing rates, alarms and setpoint changes shall be logged and retained for minimum 12 months. |
| | 4.4.6 | **Materials of construction & standards** | |
| | | 4.4.6.1 | All piping and components on the dosing skid shall be corrosion resistant and compatible with chemicals. Wetted metallic parts shall be SS316L. Non-metallic piping to be PVDF / FRP / HDPE / CPVC as applicable. |
| | | 4.4.6.2 | Fabrication shall conform to ASME B31.3 and supplier shall maintain ISO 9001 quality system. Electrical to comply with IEC standards. |
| | 4.4.7 | **Safety & environment** | |
| | | Chemical room / area shall be ventilated, provided with emergency shower & eyewash, spill kits, neutralization dosing provision and hazardous signage. MSDS for all chemicals and handling instructions in English shall be provided. | |
| | 4.4.8 | **Calibration, testing & commissioning** | |

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| | | 4.4.8.1 | Supplier to provide factory FAT for dosing skid: pump performance curve, metering accuracy test, leak & pressure test, instrumentation calibration certificates. |
| | | 4.4.8.2 | On site commissioning to include initial chemical conditioning program, commissioning water chemistry reports (before/after), and training for operator on dosing adjustments and troubleshooting. |
| | | 4.4.8.3 | Metering pumps to have calibration certificates and on-site adjustable calibration by purchaser's staff. |
| | 4.4.9 | **Spares & consumables for Dosing System** | |
| | | Supplier will supply recommended spare parts (diaphragms, valves, seals, measurement devices) and dosing chemicals sufficient for 12 months of routine maintenance and include itemized pricing in commercial offer. | |
| | 4.4.10 | **Sampling & sample points** | |
| | | Steam and Water analysis System (SWAS) for sampling. Provide sample points with valves & drains upstream and downstream of dosing points, at turbine inlet and on condensate return for testing. | |
| 4.5 | **Boiler Feedwater Storage Tank — Concrete Construction** | | |
| | 4.5.1 | **General**<br>The feedwater storage tank shall be of reinforced concrete construction designed for storage of RO / Demin feedwater for boiler service. The tank design, materials, fabrication, erection, waterproofing, lining and testing shall ensure zero adverse impact on feedwater quality (TDS, conductivity, silica, sodium, hardness etc) and shall meet the water quality. Capacity: 120 $m^3$ | |
| | 4.5.2 | **Applicable Codes & Standards**<br>The tank design shall comply with IS 3370: Parts I–IV (aspects of aqueous liquids), ACI 350 (Environmental Engineering Concrete Structures), ACI 318 (Building Code Requirements for Structural Concrete), BS EN 1992 (Eurocode 2) and applicable local building & seismic codes. Materials and workmanship shall comply with ASTM and QA as per ISO 9001. | |
| | 4.5.3 | **Concrete & Reinforcement** | |
| | | 4.5.3.1 | Concrete grade: C35 / 45 (M40) or stronger as required by structural design and exposure conditions. Use low-permeability mix. |
| | | 4.5.3.2 | Minimum specified concrete impermeability test (e.g., RCPT as per ASTM C1202) to demonstrate low permeability. |
| | | 4.5.3.3 | Reinforcement: high-yield deformed bars; use epoxy-coated rebar or stainless steel (SS 304 / 316) for elements in direct contact with water. Minimum concrete cover as per exposure class in ACI / IS. |
| | 4.5.4 | **Joints, Water stops & Penetrations** | |
| | | 4.5.4.1 | All construction joints and movement joints shall incorporate hydrophilic or PVC water stops and be detailed for water tightness. |
| | | 4.5.4.2 | Penetrations (pipes, sensors) shall be executed using mechanical seals and gland fittings with appropriate flange/packing and approved sleeves. |
| | 4.5.5 | **Internal Waterproofing & Lining** | |
| | | 4.5.5.1 | Before placing the final internal coating, a crystalline cementitious waterproofing system (e.g., Xypex or equivalent) shall be applied to all internal concrete surfaces to block capillaries and reduce permeability. |
| | | 4.5.5.2 | Over the crystalline waterproofing, apply an approved high-build epoxy phenolic / epoxy novolac lining or polyurethane lining specifically approved for demineralized water and boiler feedwater chemistry, certified NSF/ANSI 61 or equivalent compatible with required chemicals and operating temperature. |
| | | 4.5.5.3 | Total dry film thickness (DFT) for internal lining: minimum 500 µm (0.5 mm) with two coats for epoxy phenolic / novolac system. Holiday Detection Test after curing. |
| | 4.5.6 | **External Waterproofing & Insulation** | |
| | | Provide external waterproofing membrane on tank walls. External membranes shall be bituminous / polymeric membranes compatible with local soil and groundwater conditions. | |
| | 4.5.7 | **Access, Venting & Instrumentation** | |
| | | 4.5.7.1 | Provide manholes, safe permanent ladders, walkways & platforms. |
| | | 4.5.7.2 | Vents with breather filters, condensate traps and insect screens. |
| | | 4.5.7.3 | Level instruments, level transmitter, temperature sensor, conductivity/TDS monitor and sample points (inlet & outlet) all connected to Master PLC. Provide overflow and drain with non-return. |

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| | 4.5.8 | **Cleaning, Passivation & Commissioning** | |
| | | 4.5.8.1 | After construction and internal lining, the tank shall be thoroughly cleaned, neutralized, and passivated as per coating/lining supplier recommendations prior to first service. |
| | | 4.5.8.2 | Initial filling and flushing plan to be provided by supplier. Repeat flushing until conductivity and TDS meet boiler feedwater targets. |
| | 4.5.9 | **Materials & Safety** | |
| | | 4.5.9.1 | All materials in contact with feedwater shall be compatible with demineralized water and the chemicals used in dosing. |
| **5. RO + Polisher Requirements** | | | |
| 5.1 | Capacity: 60 $m^3$/hr each (Net) (Quantity: 01 Duty & 01 Standby) | | |
| | 5.1.1 | The RO plant (2 pass) shall be supplied with complete pre-treatment, RO membrane trains, CIP, and post-treatment (polishing) to meet the boiler feedwater & turbine inlet quality targets (TDS ≤ 1 ppm, Silica ≤ 0.02 ppm, Sodium ≤ 0.01 ppm, Conductivity ≤ 1 µS/cm). | |
| | 5.1.2 | Pre-treatment shall include multi-media filtration, activated carbon (for chlorine removal), cartridge filtration (5 µm and 1 µm before and after UF), Ultra Filtration, automatic backwash and antiscalant dosing. | |
| | 5.1.3 | RO vessel material will be SS304/316. | |
| | 5.1.4 | Polishing: EDI (Electro Deionization) | |
| | 5.1.5 | The RO + Polisher skid shall include online monitoring: permeate conductivity, silica analyzer, TDS, pH, hardness, flow meters, differential pressure, automatic alarms etc. All signals to be available to the Master PLC and local HMI with manual override. Historical logging for minimum 12 months. | |
| | 5.1.6 | Connection with existing Neutralization tank for disposal of RO brine and CIP waste. Disposal plan be submitted and comply with local environmental regulations. | |
| 5.2 | Fully automated, PLC base control for RO plants | | |
| 5.3 | PLC system: Siemens / Allen Bradly / Schneider or equivalent | | |
| 5.4 | HMI / Touch Screen 10" panel for local operation. | | |
| 5.5 | Complete automated control of pumps, valves, dosing, backwash, regeneration & interlock. | | |
| 5.6 | Auto start / stop to maintain the storage tank level. | | |
| 5.7 | Storage tank level shall be displayed on Master PLC. | | |
| 5.8 | Alarm for high TDS / low Pressure / pump trips | | |
| 5.9 | Data logging (Flow, TDS, pH, Conductivity runtime) | | |
| 5.10 | RO recovery ≥ 75%, Salt Rejection ≥ 99% | | |
| **6. Condensate Water Return Loop** | | | |
| 6.1 | Condensate water of Turbine will return to Hot water tank. | | |
| 6.2 | Chemistry of return condensate will be auto control by dozing system. | | |
| 6.3 | Input and output parameter will be display on Master HMI for operator. | | |
| **7. Air Compressor with Dryer and Combined Storage Vessel** | | | |
| 7.1 | 02 x Fully Automatic Air compressors for instrument air with filtration, cooling and drying | | |
| 7.2 | One air storage reservoir along with all safeties, auxiliary equipment, relevant piping / mountings, etc. | | |
| 7.3 | Make & origin will be Atlas Copco / Ingersoll Rand / Sullair or equivalent | | |
| **8. Controls, Instrumentation & Automation System** | | | |
| 8.1 | **Independent Operation (Slave Control):** | | |
| | 8.1.1 | Each boiler will be capable of running entirely on its own control system, with full safety interlocks and automation. | |
| | 8.1.2 | Each boiler to have a dedicated PLC (alongwith redundant CPU, power supply, additional I/Os 10 % of total) | |
| | 8.1.3 | Each PLC will handle sequencing, safety interlocks, drum level, combustion control, and BMS integration | |
| | 8.1.4 | Each boiler's PLC to be able to operate the unit fully with / without master system | |
| | 8.1.5 | **Each boiler will control its dosing system in real time depending on water chemistry and water flow rate** | |
| 8.2 | **Master Control Functionality:** | | |
| | 8.2.1 | Industrial grade redundant PLC system to manage overall steam generation strategy | |
| | 8.2.2 | Master PLC to read key data (steam pressure, flows, boiler status, fuel consumption) from both slave PLCs | |

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| | 8.2.3 | Master control to be able to set firing rate on each boiler |
| | 8.2.4 | Capable to operate in automatic load sharing mode or manual operator assigned loads |
| | 8.2.5 | Integrated with Slave PLC for monitoring, reporting, data acquisition & counters |
| | 8.2.6 | Steam header pressure & Flow based control to ramp firing rates up / down across both or single boiler during automatic operation |
| | 8.2.7 | Communication link between each boiler PLC and master PLC via industrial Ethernet (TCP/IP) |
| | 8.2.8 | Common steam header pressure and temperature transmitter linked to master PLC for load control |
| | 8.2.9 | Master PLC to display real-time status, alarms, and trends for both boilers |
| | 8.2.10 | Master PLC will also control steam flow to reducing station depending on the load requirements |
| 8.3 | **Alarm & Event Handling (Master & Slave)** | |
| | 8.3.1 | All fields' instruments shall be individually tagged and alarms handled at each boiler PLC / HMI with proper codes. |
| | 8.3.2 | Master PLC to display and log all alarms during automatic operation managed by Master |
| 8.4 | **Data Logging & Communication** | |
| | 8.4.1 | Master and slave HMI in boiler control room to display each boiler data, trends, alarms, event history, fuel efficiency, real time valve positions, graphical data for analysis, complete boiler operating parameters and emissions etc |
| | 8.4.2 | Real-time and historical logging of steam pressure, drum level, steam flow, fuel flow, $O_2$ %, flue gas temp, burner status, safety trips for each boiler. |
| | 8.4.3 | Historical logging for at least 12 months |
| | 8.4.4 | User-configurable reports for steam production, efficiency, fuel consumption, and downtime |
| | 8.4.5 | Provision of remote monitoring on PC via ethernet |
| | 8.4.6 | Industrial Ethernet (TCP/IP) ring topology between both boiler PLCs and master PLC. |
| 8.5 | **Power Backup**<br>For operation of PLC, BMS, and instrumentation during mains power failure with minimum 4 Hour backup | |
| 8.6 | **PLC with following features**:<br>• Siemens S7 / Schneider M580 or equivalent (Tier-1)<br>• Redundant CPUs and redundant power supplies.<br>• Hot standby with bump less transfer | |
| 8.7 | **HMI**:<br>• Industrial PC with touch screen, dual monitors at control room.<br>• OPC UA / Modbus TCP/IP communication.<br>• Trending, alarm/event history, user-based access levels. | |
| **9. Burner Management System (BMS) Burner make: Weishaupt / Saacke or equivalent**<br>Low-NOx burners: $NO_x$ < 100 ppm (NG), $SO_x$ as per NEQS. SIL-2 compliance for burner management interlocks (IEC 61511) | | |
| 9.1 | Each boiler has its own independent BMS (NFPA 85 / EN 746-2 compliant). SIL-2 compliance for critical interlocks (flame failure, pressure, low water) is required. | |
| 9.2 | Fully automatic Combustion control & burner, integrated with PLC; proportional-integral-derivative (PID) control of fuel and combustion air to maintain stable steam pressure and excess oxygen within limits. | |
| 9.3 | Automatic purge, ignition sequence, flame monitoring, and safety shutdown. | |
| 9.4 | Independent hardwired safety interlocks for low water, high steam pressure, high flue gas temperature, flame failure, and forced draft fan trip. | |
| 9.5 | Redundant flame scanners (UV) for continuous monitoring. | |
| **10. Control Loops Integrated with PLCs and Display on HMIs** | | |
| 10.1 | Three (3) element automatic **Feed water** drum level control with diaphragm feed valve along with smart positioner and feed pump interlock. Provide level transmitters, Low / High alarms. | |
| 10.2 | Steam pressure control loop | |
| 10.3 | Combustion / fuel-air ratio control loop | |
| 10.4 | De-superheater control Loop | |
| 10.5 | Furnace draft / fan control loop | |
| 10.6 | Blowdown and chemical dosing loop | |
| 10.7 | Hot water tank level control loop | |
| 10.8 | De-Aerator pressure, temperature, feed water and steam control loop | |
| 10.9 | Automatic and manual control of Reducing station input w.r.t output pressure | |
| 10.10 | Realtime water quality monitoring: pH, conductivity, TDS, silica, DO (Dissolved oxygen) etc | |
| 10.11 | Boiler – turbine coordination logic (Boiler Master + Turbine Master) for load management. | |

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| **11. Instrumentation** | |
| Make & Brand of all equipment be European or equivalent by Tier-1 brands (i.e. Enderson + Hauser, Honeywell, Yokogawa, Emerson, Siemens, Saacke etc). Instrumentation will include following but will not be limited to: | |
| 11.1 | Steam pressure transmitters & safety relief valves |
| 11.2 | Temperature transmitters |
| 11.3 | Pressure gauge, draft gauges & temp. gauges |
| 11.4 | Drum water level transmitters |
| 11.5 | Steam flow, feedwater flow, and fuel flow meters (digital output to PLC) |
| 11.6 | Pressure & Temp. transmitter for Steam header for monitoring and load management of boilers w.r.t requirement of steam turbine |
| 11.7 | Natural gas Fuel train & instruments |
| 11.8 | Real time Stack ($O_2$, $NO_x$, $CO_x$, $SO_x$) and temperature analysis for burner setting to achieve efficiency |
| 11.9 | Economizer, super heater and de-super heater temperature |
| 11.10 | Motor current sensors for fans and pumps. |
| 11.11 | Conductivity / resistivity, pH, TDS monitor for boiler water |
| 11.12 | All field transmitters (level, pressure, flow, temperature, and analyzers) will be HART-capable (HART v7 or later) along with local display |
| 11.13 | **Portable Flue gas analyzer (O2, NO, CO, SO2, NOx) with printer (Meet the PEQ's required parameters)**<br>• Flow: Orifice / Vortex with transmitters (IEC 61557).<br>• Pressure: Smart transmitters, HART / FOUNDATION Fieldbus capable.<br>• Temperature: Duplex RTDs (Pt100) and thermocouples.<br>• All transmitters to have local digital displays.<br>• Minimum accuracy: ±0.25% of span.<br>• Isolation valves and calibration ports on all transmitters. |
| **12. Safety Devices** | |
| 12.1 | Control valves must be fail-close (spring return) and Safety / relief valves must be fail-open to in case of power failure or forced shutdown. |
| 12.2 | Safety / relief valves sized and set as per design pressure; pressure alarm & shutdown systems; low-water cutoff; burner interlocks; emergency stop on plant and control panels; |
| 12.3 | Access platforms and safety railings as per standard. Provide P&ID showing safety interlocks. |
| **13. Motors, cables & Switchgear** | |
| 13.1 | Motors will have following ratings:<br>Supply voltage: 400 V, 3-phase, 50 Hz.<br>Insulation class: F, temperature rise limited to class B.<br>Protection: IP55 for outdoor, IP54 for indoor.<br>Bearings: Grease-lubricated with provision for greasing during operation.<br>Energy efficiency class: IE3 / IE4<br>All critical drives (FD / ID fans, boiler feedwater pumps) to be equipped with VFDs (Variable Frequency Drives) for efficiency and smooth load control. |
| 13.2 | Control cables: twisted, shielded for signals, IEC 60228.<br>Fire survival cables for critical interlocks IEC 60331.<br>Segregation of power and control wiring in separate cable trays.<br>Cable identification with ferrules at both ends. |
| 13.3 | LV switchgear: IEC 61439-1/2 compliant. |
| 13.4 | Protection relays: Electronic based |
| 13.5 | Earthing: As per IEEE 80 / IEC 60364, resistance < 1 ohm. |
| 13.6 | Surge protection devices (SPD) on incoming supply and sensitive control circuits. |
| **14. Spares & Tooling** | |
| 14.1 | Firm will provide essential maintenance & operational spares / consumable against complete plant for 02-year. |
| 14.2 | Item wise specification / model, service life & quantity of all spares / consumable should be quoted in technical offer and item wise price separately mentioned in commercial offer |
| 14.3 | Provision of chemicals (for dosing in boilers, RO, EDI, cleaning etc) for 01 year |
| 14.4 | Firm will provide recommended 02 x set of tool kit for essential repair / maintenance (Mechanical, Electrical & Electronics). |
| 14.5 | 01 x Laptop of latest version for programming & PC for remote monitoring, data logging, backup of plant software, fault finding and diagnostics along with printer. |
| 14.6 | Supplier will ensure the availability of spares for at least 10 years on as and when required basis on payment. |
| 14.7 | Burner nozzles, igniters, gaskets, seals, control cards, pump seals, fan bearings etc for 2 years of operation. |
| 14.8 | All calibration and lifting tools unique to the boiler. |

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| **15. Scope of Civil Work by supplier** | |
| 15.1 | Plant will be installed in the existing building at Power House. Drawing / sketch of building is attached. |
| 15.2 | Any modification in existing civil structure (if required) |
| 15.3 | Civil structure and site preparation for plant and control room |
| 15.4 | Any material related to electrical / mechanical / civil required for installation & commissioning |
| 15.5 | Air-conditioned control room (heat & sound proof) for both boilers |
| 15.6 | Tile work, paint / distempering, epoxy flooring, internal electrification for lighting etc. |
| 15.7 | Construction & connection of drainage system with existing network for RO brine, CIP wastage, chemical spillage, rejected water, sampling point wastage, chemical washing area. All liquid effluents will be disposed through existing neutralization tank. |
| 15.8 | All pipes for compressed air, steam, water, gas etc for plant and for connection with existing system. Materials, color coding and insulation as per standard will be used. |
| **16. Installation & Commissioning** | |
| 16.1 | Supplier may visit POF site where boilers are to be installed for ascertaining the exact scope of work before participating and submission of technical and commercial offer |
| 16.2 | Supplier will perform civil / structural supervision, erect equipment, hook up auxiliaries, pre-commissioning, chemical cleaning etc |
| 16.3 | Installation & commissioning of the plant is the sole responsibility of supplier including all risks |
| 16.4 | POF will provide utilities (water, compressed air, electricity, telephone, internet) to assist during installation & commissioning. |
| 16.5 | Requisite materials (Mechanical / Electrical) for installation & commissioning will be managed by the supplier. |
| 16.6 | Civil structure required for plant will be responsibility of the supplier. |
| 16.7 | The supplier will provide plan of installation and commissioning including time schedule and total man-weeks of its engineers / technicians required for installation, commissioning and trial run of the plant. |
| 16.8 | All expenses, including boarding & lodging, travel etc of the manpower utilized during installation & commissioning will be borne by the supplier. |
| 16.9 | POF's Engineers / Technicians will remain attached with supplier's technical team during installation & commissioning |
| 16.10 | Third party inspection of complete system after installation & commissioning will be responsibility of the supplier |
| **17. Final Acceptance Test (FAT)** | |
| 17.1 | FAT will be carried out at purchaser's site after completion of installation & commissioning |
| 17.2 | Trial run of 02 week at MCR to demonstrate steam capacity, steam quality, fuel consumption, thermal efficiency, emissions and safe operation. |
| 17.3 | FAT will be carried out as per scope attached as **"Annexure-D"** |
| **18. Documentation & Deliverables (02 Sets)** | |
| 18.1 | All documents and accessories required for installation, programming, configuration, commissioning, repair, maintenance and field re-works required at any level of programming, configuration, optimization and calibration should be included in supply only in English language. |
| 18.2 | All Software / backup program on CD / DVD & USB and hardware interfaces (cables, dongles etc) required at any level of application, trouble shooting and diagnostics on all equipment should be included in the supply with password up to manufacturer's level. |
| 18.3 | Final commissioning programs / parameter & configuration fed to any programmable device / equipment will be provided in soft form. |
| 18.4 | Calibration certificates of all installed field instrumentation. |
| 18.5 | • As-built Assembly / GA drawings in AutoCAD/Revit.<br>• P&IDs in editable AutoCAD format.<br>• Electrical SLDs.<br>• All erection drawing will be provided in hard and soft form. |
| 18.6 | Material Testing Certificates (MTCs), welding procedures (WPS/PQR), hydrotest reports. |
| 18.7 | O&M manuals in English language (hard + soft copies). |
| 18.8 | Training manuals for operators. |
| 18.9 | List of chemicals along with MSDS, data sheets and chemical dosing schemes for feed water, deaerator, condensate, water treatment plant, storage tanks etc. |

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| **19. Warranty / Guaranty** | |
| 19.1 | 02 Year Warranty / Guaranty will be binding on the supplier for a period of 24 months reckoning from successful FAT at POF Wah site. |
| 19.2 | Any faulty equipment during warranty / guaranty period will be replaced by supplier on FOC Basis. |
| 19.3 | Plant and accessories will be accepted on supplier's warranty/guaranty with regard to quality subject to these being technically checked/tested and accounted for upon arrival at Purchaser warehouse in presence of supplier's rep (if desired by supplier) at their cost. |
| 19.4 | In case, the stores on checking / test after receipt at Purchaser warehouse are found not confirming strictly to the relevant specification and other particulars are found damaged during transit, the supplier will immediately replace the rejected / damaged stores by acceptable Stores on FOC basis, and without obligation to the purchaser |
| 19.5 | Rejected / damaged stores will be disposed off by the supplier under his own arrangements |
| 19.6 | The supplier will also provide warranty for meeting the requisite quality of products. In case of any deficiency in terms of quality of products, all related expenditure to fulfill commitment will be borne by the supplier. |
| 19.7 | Any consequential damage will be borne by supplier equivalent to 100% of the contract value. |
| **20. Training & Technical Support** | |
| 20.1 | Hands-on Training (covering O&M, electrical / electronic troubleshooting, safety) of POF Officials for 14 x working days at purchaser site. |
| 20.2 | Training of 08 x POF Officials for 02 x weeks in the field of PLC Programming & troubleshooting will be carried out at OEM premises |
| 20.3 | The manufacturer should have backup facilities i.e. after sales services, engineers / technicians, availability of spares and proper workshops in Pakistan. Detail of workshop to be shared in technical quotation. |
| 20.4 | The supplier will provide Free of Cost technical support for at least 10 years on as & when required basis |
| 20.5 | Supplier will provide 01 x year O&M of boilers & water treatment |
| **21. Site Conditions & Available Services** | |
| 21.1 | The available electric system on site for functioning of the machine is:<br>• 380 ± 5% VAC, 50Hz, 3 Phase, 4-Wire System<br>• 230 ± 5% VAC, 50Hz, 1 Phase, 2-Wire System |
| 21.2 | The available compressed air supply is 4 ~ 6 Bar |
| 21.3 | The available Natural gas supply is 1 ~ 4 Bar |
| 21.4 | The available raw water at 2 - 3 Bar and at 20 °C ± 5 °C<br>• TDS : 250 ± 50 ppm<br>• Hardness : 230~280 ppm |
| 21.5 | The available climatic conditions:<br>a. Temperature:<br>▪ Winter = 0° to 20° C<br>▪ Summer = 30° to 50° C<br>b. Relative Humidity = 25 to 90%<br>c. Earthquake Value = 6.5 on Richter scale (Normal) |

## 22. Country of Origin:

UK, European USA, Korean, Chinese, Turkiye, local or equivalent

## INSTRUCTIONS FOR LOCAL BIDDER TO QUOTE ON F.O.R WAH BASIS

1. **SUBMISSION OF TENDER**

1.1 Tenders will be opened at **1230** hours on **06-01-2027** at Bidding Centre adjacent to Reception Hall, POF Wah Cantt and must reach at below mentioned address before 30 Minutes of opening time. The tender received late will not be entertained. You may witness the opening of the tender if you so desire. If a representative is deputed, he should bring CNIC in original and a letter of authority from you.

1.2 Only one tender should be included in one envelope. The outside of the envelope should be inscribed with: -

Tender Enquiry No: **03-FP-DS-Capt-56 dated 16-11-2026.**

Tender to be opened on: **06-01-2027.**

Address as follows: - **DIRECTOR SERVICES, BID CENTER, ADJACENT TO RECEPTION HALL, POF WAH CANTT**

Tele: +92-51-9055-21090

Fax: +92-51-9271400, 9314100

1.3 If envelope does not indicate reference of T.E or received late the same may be returned un-opened.

1.4 Tender "By Hand" can be delivered at Bid Centre, Reception Hall, POF Wah Cantt.

1.5 offers received through email / fax are not acceptable.

2. **GENERAL INSTRUCTIONS REGARDING PREPARATION OF QUOTATIONS**

2.1 For materials, the prices should be filled in column 5 and delivery date in column 6 of the schedule to this Tender Enquiry. The undertaking should be signed at the bottom of the Schedule which shall form the Quotation. You may use a separate sheet if necessary.

2.2 For Plant and Machinery, you are required to quote in two parts: -

Part I **"Technical Offer":** It should exclusively give technical details and literatures/brochures of the offered plant, machinery and equipment; validity date; delivery schedule; and signed undertaking given on the schedule to this Tender Enquiry. It must not indicate price, costs etc.

Part II **"Commercial Offer"** It should indicate the commercial terms e.g., price, terms of payment, mode of payment, mode of supply.

Each part should be placed in a separate sealed cover. The envelopes should be inscribed with: Part I "Technical Quotation without price" and Part II "Commercial Quotation with Price."

2.3 The quotation must remain valid for, at least **120 days** from the date of opening of commercial tenders, extendable if so desired.

2.4 The quotation should hold good for any reduced or enhanced quantities without notice.

2.5 In the event of non-acceptance of offer, intimation may be given to the tenderers on their request.

2.6 Conditional offers or alternative offers are likely to be ignored.

2.7 Quotations should be based on: -

F.O.R. station of Dispatch basis, i.e., delivered free on rail, inclusive of packing and forwarding charges. The stores will be booked under Military Credit Note, to be provided by the purchaser.

and/or

Free delivery at POF's stores at **POF Wah basis.** In this case Octroi duty will be payable by the supplier.

2.8 Taxes and Duties etc. where applicable, must be shown separately, quoting reference to Registration No. in cases of Sales Tax and relevant authority in the case of others. Offer without these clarifications and inclusive of Taxes and Duties may be ignored.

2.9 Taxes and duties levied on or after Tender opening date or on or after the date offer was signed and dispatched will be allowed to include in the offered rates.

2.10 "Suppliers will furnish a certificate, issued by Excise & Taxation Deptt, that he has cleared all Professional Tax payable by him" offers received without this certificate will be rejected.

2.11 Suppliers will render necessary information regarding hazardous effects on environment, of the materials/products supplied by them, in their quotations and shipping/dispatch documents.

2.12 If the requisite information is not furnished on the T.E forms or offer received is not conformity with the requirement of the T.E such offer shall be ignored.

## 3. Pre-shipment Inspection / Pre-liminary Inspection: -

3.1 Pre-shipment inspection of boilers & accessories will be carried out by a team of 05 x POF Officials for 05 x working days at OEM / manufacturer premises before dispatch of store. All expenditure in respect of PSI including Boarding, lodging & Transportation will be borne by the purchaser.

3.2 100% inspection as per specs & standards will be considered acceptable.

3.3 Inspection facilities such as test bed, tools, test equipment etc. will be provided by the supplier in accordance with the relevant specification.

3.4 Rejected store will be removed and replaced with acceptable store by supplier at his own expense within time period agreed by purchaser and supplier.

3.5 PSI will be carried out as per scope attached as **"Annexure-C".**

## 4. TENDER FEE

The tender must be accompanied by a non-refundable fee by means of a **crossed postal order/pay order for Rs 500/- in favour of Director Admin POFs Wah Cantt.**

## 5. BID MONEY

5.1 A copy of Bid Security should accompany the tender in shape of deposit at call receipt/Pay Order/Banker Cheque from scheduled bank drawn in favour of:

DIRECTOR SERVICES

5.2 Bid security instrument in original must be provided on the day/date of tender opening in the Bid Center as under:

a. Registered/indexed firms @ 2% of quoted value subject to the maximum ceiling of Rs. 0.5 Mn.
b. Registered/un-indexed firms @ 3% of quoted value subject to the maximum ceiling of Rs. 0.75 Mn.
c. Unregistered firms @ 5% of quoted value subject to the maximum ceiling of Rs. 1.00 Mn.
d. Govt organization/production units/state owned enterprises/welfare projects of Svcs HQ - Rs 0.50 M.
e. Bid money will be returned to unsuccessful (less first three lowest quotee firms) bidders on opening of commercial offers.
f. Bid money will be returned to successful bidders on submission of performance bond/unconditional B.G.
g. Quotation accompanied with less bid money will be accepted on provisional basis for 10 x days after opening of bids. However, the firms are bound to provide/furnish the balance bid money within 10 x days after opening of bid otherwise such quotations will be ignored or rejected.
h. Offers received without Bid Security will not be entertained.
i. Bid money will be forfeited in case the quotation is withdrawn before the expiry of its validity date.

## 6. ACCEPTANCE OF OFFERS

6.1.1 The procuring agency may reject all bids or proposals at any time prior to the acceptance of a bid or proposal. The procuring agency shall upon request communicate to any supplier or contractor who submitted a bid or proposal, the grounds for its rejection of all bids or proposals, but is not required to justify those grounds.

6.1.2 Procuring agency shall incur no liability, solely by virtue of its invoking sub-rule (1.1) towards suppliers or contractors who have submitted bids or proposals.

6.1.3 Notice of the rejection of all bids or proposals shall be given promptly to all suppliers or contractors that submitted bids or proposals.

## 6.2 PERFORMANCE BOND

(a) The successful bidders shall provide Performance bond at the rate, prescribed by POF Board according to the value of contract which shall not exceed 10% of contract value, in the form of a Deposit at Call Receipt from a scheduled Bank. The Performance Bond will be in favour of C.M.A. POF Wah Cantt. It will be returned on satisfactory completion of the contract.

(b) If the Supplier fails to furnish the Performance Bond within the specified time, such failure will constitute a breach of the contract and the Purchaser shall be entitled to make other arrangements for purchase of the stores at the risk and expense of the Supplier.

**6.3** Performance Bond from State owned organizations may be waived off at the discretion of the Purchaser.

## 6.4 FAILURE TO SUPPLY THE STORES

All deliveries must be completed by the specified date. If the failure to deliver the stores within the scheduled time should have arisen from "Force Majeure", which the Purchaser may admit as reasonable ground for further time, he will allow such additional time as he may consider to have been required by the circumstances of the case. Otherwise, he will be entitled, at his discretion, to cancel the contract; and/or, claim liquidated damages

up to 2% but not less than 1% of the contract price of the items and their quantities for each and every month or part of a month, beyond the specified delivery date, during which these may not be delivered, subject to a maximum of 10% of the total contract value of the particular stores which remained unsupplied either in part or in full: or, to purchase, from elsewhere, the unsupplied stores at the risk and cost of the Supplier.

## 6.5 PAYMENT

a. Payment terms & conditions are negotiable.60% payment will be released upon receipt of complete store at purchaser site and issuance of Acceptance Certificate signed by the PSI team, confirming satisfactory pre-shipment inspection.
b. 40% payment will be released upon final acceptance subject to the following certifications signed by inspection team nominated by Purchaser.
    i- Successful installation / commissioning at POF Premises.
    ii- Successful completion of FAT.
c. Payment of duties/Taxes including professional tax (where applicable) must be supported by proof of having paid these to concerned Govt. Taxation Deptt.

## 7. SECURITY OF INFORMATION

The tenderer and his employees must not communicate any information relating to the sale/purchase of stores under this enquiry to any person other than the manufacturer or to any press or agent not authorized in writing by POFs to receive it.

Please return the Schedule to the Tender duly signed by the specified date, along with the specification's drawings etc. if any, enclosed herewith - even if you are unable to quote.

**PAKISTAN ORDNANCE FACTORIES**

**SCHEDULE TO TENDER NO. 03-FP-DS-Capt-56 dated 16-11-2026.**

(1) FOR MATERIALS

| (1) | (2) | (3) | (4) | (5) | | (6) |
|---|---|---|---|---|---|---|
| Item No | Description with spec etc. | Unit | Qty | Price per unit F.O.R free delivery | | Delivery date |
| | | | | In figure | In words | |
| i. | Complete designing, manufacturing, inspection, supply, installation, testing & commissioning of 2 x 30TPH Water-Tube Superheated Steam Boilers. | No | 02 | | | |

(2) For Plant & Machinery:
Specification: - **Attached as Annex-A**
PSI Criteria: - **Attached as Annex-C**
FAT Criteria: - **Attached as Annex-D**

(3) **SPECIAL CONDITIONS:**

i) Offers of firms with credible past performance with POFs will be given due consideration.

ii) Supplier's capability Performa is mandatory for the new entrant firms / quoting the store for first time to submit alongwith undertaking with the technical offer. POF reserves the right to reject offers without requisite information.

iii) Public sector organizations / POF Subsidiaries may be exempted from Supplier Capability Performa. However, POF may require the same from existing suppliers where considered necessary based on value, nature or risk of procurement.

iv) Proof of successful completion of contract of same / similar nature & / or comparable value store to any government organization may be attached (if any) and will be given extra weightage at the time of calculation of offers.

v) Offers with bid money less than 50% of the required amount will be rejected straightaway. Remaining amount (above 50%) must be submitted within 10 days, otherwise offer will be rejected.

vi) Authorized dealer of OEM having backup services (OEM authorized maintenance workshop and spare parts godown) in Pakistan is eligible to quote.

vii) Manufacturers must have valid international certification regarding equipment & spares i.e CE marked or any equivalent standard.

viii) The model should be out of latest production. Detailed specifications of quoted model should be available on manufacturer official website.

ix) No reconditioned / used part / component will be acceptable. In such case, firm will be responsible to replace it with new one.

x) Repair / maintenance period (in case of breakdown during warranty / guarantee) will not be counted in Warranty / Guarantee period.

xi) Population list of same make & model of quoted Boilers & accessories, in Pakistan is essentially required with complete addresses of users including postal address, email address, telephone number & fax number etc.

xii) **Compliance sheet (point-to-point comparison) to T.E is also essentially required as per following format.**

| S # | POF SPECIFICATION | FIRMS REMARKS / OFFERS. |
|---|---|---|
| 1. | | |

xiii) POF reserves the right to reject any firm's offer on the basis of quality/ services issues

xiv) **Breakdown of rates be given showing price and sales tax separately. If nothing is mentioned then offer shall be considered inclusive of GST.**

xv) In case of arbitration or court case, it can only be filed in Rawalpindi / Islamabad.

xvi) Only registered suppliers (with sales Tax & income tax deptt.) who are on Active Taxpayers List (ATL) of FBR are eligible to supply goods/services to government department.

xvii) If any registered supplier is not in ATL, his payment would be stopped till he files his mandatory returns and appears on ATL of FBR.

(4) **Undertaking**

Should our offer be accepted, we hereby undertake to supply the stores/render the services contracted on the basis of General Conditions of Contract embodied in Form POF-1281, and to deposit the performance bond within the prescribed time, failing which it will constitute a breach of contract, and POF will have the right to purchase the stores/services elsewhere at our risk and cost.

Place_____

Date_____

Signature of the Tenderer _____

Name_____

Position_____

Address_____

Income Tax G.I.R No. _____

Official stamp.

## SCOPE / CRITERIA OF PRE-SHIPMENT INSPECTION

| Sr # | Description | Test / check | Acceptance criteria |
|---|---|---|---|
| 1 | Design & Documentation Review | Verify electrical & mechanical drawings, P&IDs, design calculations, material test certificates (MTCs), welding procedure (WPS/PQR/WPQ), ASME certificates, O&M manuals, calibration certificates, test reports provided before shipment. | Documents must be approved, stamped, and match with contract / ASME requirements |
| 2 | Drum Inspection (Steam & Mud Drums) | Internal & external inspection (welds, nozzles, manholes, baffles, cleanliness) | • No cracks, distortion, or foreign matter<br>• Welds radiographed / UT |
| 3 | Tube Bundle Inspection | Visual inspection of tube welding / expansion, spacing, bends, supports. Documentation review of all tubes. Test reports, Heat report and traceability. | • Proper expansion / welding<br>• No dents or misalignment<br>• All documents cleared |
| 4 | Headers & Manifolds | Visual & dimensional checks, weld joint inspection | Welds defect-free, end caps & stubs as per drawings |
| 5 | Superheater & Economizer | Visual inspection of coils, bends, pitch, alignment | • No deformation<br>• Supports adequate for thermal expansion |
| 6 | Welding Quality | Radiography, UT, MT or PT of pressure part welds | • 100% RT / UT<br>• Weld quality as per ASME |
| 7 | Hydrostatic Test (Shop) | Hydraulic test at 1.5× design pressure (30 – 60 minutes) for drums, headers, coils / tubes | • No leakage or permanent deformation<br>• Test report of manufacturer |
| 8 | Auxiliary Equipment Check | Inspect FD / ID fans, feedwater pumps, burners etc. | • Availability of Manufacturer test certificates<br>• Functional checks passed |
| 9 | Safety Valves & Instruments | Check calibration & certification of safety valves, pressure gauges, transmitters. Lift testing before dispatch. | • Safety valves must lift at set pressure<br>• Instruments calibrated having valid certificates |
| 10 | Control Panel / Electricals | Check panel wiring, labeling, PLC installation, cooling unit and communication ports. | • As per approved drawings<br>• Neat wiring<br>• Interlock logic verified |
| 11 | Surface Protection | Check painting / anti-corrosion coating, insulation supports, casing integrity. DFT (Dry Film Thickness) test of paint system as per vendor spec. | • No rusting or damage |
| 12 | Preservation & Packing | Verify drums / headers internally oiled, desiccants added, nozzles capped, export-worthy packing | • Internal protection intact<br>• All openings sealed<br>• Instruments packed separately |
| 13 | Marking & Identification | Check nameplates, nozzle markings, shipping marks, packing list. ASME "S" stamping, serial numbers, rating plates checked. | As per approved documents |
| 14 | Dynamic parts balancing | Impellers, fans, pumps dynamically balanced to ISO 1940 G2.5. | No abnormal vibration or noise. |

## Scope / Criteria of Final Acceptance Test

| Sr # | Description | Test / check | Acceptance criteria |
|---|---|---|---|
| 1. | Hydrostatic Test | Witness hydrotest of boiler drums, headers, and pressure parts at 1.5 × design pressure as per ASME Section I. | • No leakage<br>• Pressure sustained |
| 2. | Pneumatic Test | On control air circuits, at 1.25 × operating pressure, with soap solution leak test. | |
| 3. | Burner Management System / Safety Interlocks | Burner efficiency and working by stack monitoring. Automatic trip on simulated flame failure, low water, high pressure, power loss. | • Maximum stack $O_2$: 3-5% (NG) and Maximum excess air: 15%.<br>• Proper tripping at all faults. |
| 4. | Inspection & Registration from Punjab Boiler Board | All checks and physical inspection by Boiler Engineer | Passed and registration certificate issued |
| 5. | Steam Quality | All chemical and physical analysis | Total dissolved solids (TDS): ≤1 ppm at turbine inlet<br>Silica: ≤ 0.02 ppm<br>Sodium: ≤ 0.01 ppm<br>Iron & copper: ≤ 0.01 ppm each. |
| 6. | Steam Output Capacity | Run boiler at full load and measure steam flow | Must deliver 30,000 kg/hr (30 TPH) at rated pressure & temperature |
| 7. | Steam Pressure & Temperature | Record outlet steam conditions at superheater | Within design limits as per datasheet. Variation not more than ±2% of setpoint during load swings. |
| 8. | Boiler Efficiency | Conduct test per ASME PTC-4 / BS 845 (direct & indirect methods). | Efficiency ≥ 85% at MCR |
| 9. | Fuel Consumption | Measure actual fuel flow vs. calorific value | Must match or be lower than guaranteed fuel rate at MCR (± 2%) |
| 10. | Flue Gas & Stack Temperature | Record $O_2$, $CO_2$, CO, $NO_x$, $SO_x$, PM, and stack temp | • Stack temp within limits (e.g 150–180 °C)<br>• Emissions as per local regulations |
| 11. | Continuous Full Load Trial | Operate at 100% load for 02 hours | • No major trips / failures<br>• Stable operation maintained<br>• Boiler to turbine coordination through Master PLC. |
| 12. | Partial Load Performance | Operate at 25%, 50%, 75% & 100% for 1 hour against each load | • Stable operation<br>• Efficiency within ±2% of design |
| 13. | Load Change Test | Sudden ±10–20% load change. Check for coordinated operation with turbine. | No flame failure, tripping, or unsafe operation |
| 14. | Safety Valve Performance | Pop test safety valves at site | Open at set pressure, reset without leakage |
| 15. | Interlocks & Protections | Check low / high water level trip, high steam pressure trip, flame failure | All interlocks must function correctly with immediate shutdown response |
| 16. | Third-party inspection by Lloyd's / BV / TUV | Witness inspection and verified reports | All reports stamped by authorized inspector |
| 17. | Auxiliary Equipment | Test FD, ID fans, feed pumps etc | • Flow, head, vibration, and power consumption within design |
| 18. | Water Quality (Feed & Drum) | Sample and analyze feedwater & boiler water | • Feedwater: $O_2$ < 0.007 ppm<br>• Boiler water: pH 8.50-10.50, Conductivity <10 µS/cm |

| | | | |
|---|---|---|---|
| 19. | Steam Quality | Sample steam and test for impurities | • Silica < 0.02 ppm<br>• TDS < 1 ppm<br>• Sodium < 0.01 ppm |
| 20. | Instrumentation & Controls | Verify calibration of gauges, transmitters, flow meters, DCS interface | All with calibration certificates and control loops stable. End-to-end loop checks (sensor → PLC → actuator). |
| 21. | Emissions Compliance | Measure flue gases with calibrated analyzer | As per environmental standards |
| 22. | Noise & Vibration | Check noise levels of fans, pumps, and auxiliaries | Must meet OSHA/local limits; typically, <85 dB(A) at 1m distance.<br>Vibration as per ISO 10816. |
| 23. | Storage Tank Water Test | Water in tank remains within steam quality parameters after 24 hours of storage | Variation in parameters ≤1% |
| 24. | Storage Tank Test | • Hydrostatic test at design surface level (full tank) for 72 hours to verify water tightness.<br>• Coating adhesion test (pull-off) per ASTM D4541 and holiday detection (spark test) for coating continuity.<br>• Concrete core / compressive strength tests and RCPT permeability test results to be submitted. | • No visible leakage<br>• Results as per standard |
| 25. | Documentation Handover | Verify as-built drawings, test reports, certificates | All documents complete and signed by OEM, client, third-party inspector. "Manufacturer's Data Report (Form P-3, ASME)" with stamping. |

# Form of Bid-Securing Declaration

*[The Bidder shall fill in this Form in accordance with the instructions indicated.]*

Date: *[date (as day, month and year)]*
No.: *[number of bidding process]*
Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[complete name of Procuring Agency]*

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

(a) have withdrawn our Bid during the period of Bid validity specified in the Letter of Bid; or
(b) having been notified of the acceptance of our Bid by the Procuring Agency during the period of Bid validity, (i) fail or refuse to sign the Contract; or (ii) fail or refuse to furnish the Performance Security (or guarantee), if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Name of the Bidder*----------
Name of the person duly authorized to sign the Bid on behalf of the Bidder**_____
Title of the person signing the Bid _____
Signature of the person named above _____
Date signed _____ day of _____

*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder
**: Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

*[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]*

# PAKISTAN ORDNANCE FACTORIES

## SUPPLIER`S CAPABILITY

1. NAME OF THE FIRM: _____

2. ADDRESS: _____

_____

2.1- Tele No: _____

2.2- Fax No: _____

2.3- Email Address _____

3. CHECK ONE BOX

PUBLIC LTD ☐ PRIVATE LTD PARTNERSHIP ☐ SOLE PROPRIETORSHIP ☐

3.1- Established Since: _____

4. BRANCHES, IF ANY: _____

5. THEIR ADDRESSES: _____

6. CAPACITY:

Manufacturer ☐ Stockist ☐ Authorized Dealer/Distributor ☐ Agent to Foreign Firm ☐
Importer ☐

7. IF MANUFACTURER, PROVIDE FOLLOWING:

7.1- Range of Products Manufactured: _____

_____

_____

7.2- Inspection/Quality Assurance Facilities: _____

_____

7.3- Iso-9000 Certified ☐ If So Attach Proof Documents (in hard form)

7.4 Certificate of Registration Under Factories Act 1934 (attach in hard form) ☐

8. IF STOCKIST, PROVIDE FOLLOWING:

8.1- Details of Stocks Held (List of Items): - _____

_____

_____

8.2- Approx. Stock Value _____

8.3- Location of Stocks: _____

_____

9. IF AUTHORIZED DEALER/DISTRIBUTOR, PROVIDE FOLLOWING (in Hard Form):
9.1- Authenticated copies of dealership / distribution certificate issued by OEMs

10. IF AGENT TO FOREIGN FIRM, PROVIDE FOLLOWING (in Hard Form):
10.1- Agency Agreement of Foreign Principal(s) (Valid for 3 to 5 years)

11. IF IMPORTER, ATTACH FOLLOWING (in Hard Form):
11.1- Bill of Lading of Import of Same / Similar Nature Store
11.2- GD (Good's Declaration) in Name of Supplier for Same / Similar Store

12. FINANCIAL CAPABILITIES (Please attach proof in Soft & Hard Form)
12.1- ATTACH FOLLOWING AUDITED DOCUMENTS (Last Year):

Banker's Certificate / Letter of Credit Commitment ☐ Bank Statement ☐

13. We hereby certify that our current financial commitments will not adversely affect the future commitments ☐

14. We hereby certify that sufficient working capital resources or banking facilities ara available to meet contracting obligations ☐

















