

**TENDER DOCUMENT
FOR
DESIGN, ENGINEERING, MANUFACTURE, SUPPLY,
LABOR JOB
FOR
INSTALLATION, TESTING AND COMMISSIONING
OF
STEAM GENERATING PLANT (BOILER) OF 1 TPH
FOR 600 TPD CATTLE FEED PLANT
AT
PALANPUR, GUJARAT ON TURN KEY BASIS**



TENDER Ref NO.: BNS/PLN/CFP/BOILER/1TPH/2020

Notice Inviting Tender Bid



**BANASKANTHA DISTRICT CO-OP. MILK PRODUCERS' UNION
LTD.,
BANAS DAIRY, PB NO: 20, PALANPUR: 385 001
Phone: (02742) 253881 to 253885**

TENDER NOTICE

Sealed Tender Bids are invited for Design, Engineering, Manufacture, Supply, labor job for Installation, Testing and Commissioning of Steam Generating Plant (Boiler) of 1 TPH for 600 TPD Cattle Feed Plant at Palanpur, Gujarat on Turn Key Basis from experienced and eligible bidders.

Tender document containing detailed scope of work, specification of items, general terms and conditions and the eligibility criteria is available at our website: www.banasdairy.coop. Completed tender bid, in sealed envelope super-scribed with the **“Tender for Steam Generating Plant (Boiler) 1 TPH, Cattle Feed Plant, Palanpur Banas dairy”** by due date **16.09.2020**, can be submitted latest by **16.09.2020 up to 1.30 P.M.** All bids shall be opened on **3.00 P.M. on 16.09.2020**, in presence of all present bidders.

The Incharge Managing Director reserves the right to accept or reject any or all tenders without assigning any reason there of and there shall be no dispute on that decision.

Incharge Managing Director

CHECK LIST FOR BID SUBMISSION

Table 1 Check List of Bid Submission		
SR NO	Requirement	Tick(v)
1	Have you submitted the Bid Security?	YES / NO
2	Have you submitted TECHNICAL BID and PRICE BID?	YES / NO
3	Have you quoted Bid Prices in terms of Instructions to Bidders?	YES / NO
4	Have you given the Bid Form on your letterhead, Price Schedule summary sheet in the prescribed format and item wise break-up sheet?	YES / NO
5	Have you submitted the original Bidding Document completed in all respects, duly signed and sealed?	YES / NO
6	Have you submitted the Supporting Documents?	YES / NO
7	Have you quoted the Project Completion delivery period correctly & precisely?	YES / NO
8	Have you furnished the Statement of Deviations (Preferably Nil)	YES / NO
9	Have you kept your bid valid for 120 days?	YES / NO
10	Manufacturers' Authorization Form	YES / NO
11	Power-of-attorney for authorized signatory	YES / NO

Signature & Seal of the Bidder

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Preface

Banaskantha District Co-operative Milk Producers' Union Ltd., Palanpur (popularly known as Banas Dairy) is one of largest Milk Producers' Union in Asia and is engaged in business of processing of milk and manufacturing of Milk products through its state of the art Manufacturing Facilities at various locations across several states.

Banas Dairy invites tender bids for Design, Engineering, Manufacture, Supply, labor job for Installation, Testing and Commissioning of Steam Generating Plant (Boiler) of 1 TPH for 600 TPD Cattle Feed Plant at Palanpur, Gujarat on Turn Key Basis as per Annexure for Scope of Work) from experienced and eligible bidders.

Important Points:

- For detailed understanding of our requirement, bidder may visit Cattle Feed Plant, Banas Dairy, Palanpur or may contact Purchase Department.
- Bidders who have downloaded tender form from our website are required to notify our Purchase Department by e-mailing the notification as per format given in Annexure **"Notification of Tender Document Download"** to e-mail id tender@banasdairy.coop. This notification will inform Banas Dairy about your interest for quoting against this tender and you will be updated about various clarifications issued by Banas Dairy in reference to this tender and also regarding any amendment in Tender Document (if any) during its publication period at the same e-mail id from which we receive your notification mail. In case of no timely notification submitted to Banas Dairy, Banas Dairy will not be responsible for any lack of communication regarding any amendment in Tender Document (if any) and other relevant communications like clarifications.

Important Dates:

Sr. No.	Events	Date
1	Document Download Start Date	21.08.2020
2	Document Download End Date	16.09.2020
3	Last Date for seeking clarification	30.08.2020
4	Submission of Query by Email till 03.00pm	31.08.2020
5	Pre - Bid Meeting	02.09.2020
6	Last Date For Submission of Bid (up to 1:30 PM)	16.09.2020
7	Opening of Technical Bids (at 3:30 PM)	16.09.2020

Details pertaining to Site Visit:

- **CONTACT PERSON:**

Shri Rajesh Chaudhari – 94087 00187

Shri Balveer Singh – 78388 44263

Shri Naresh Chaudhari – 94088 44460

- **Site Visit Address:**

Banaskantha District Cooperative Milk Producers' Union Limited,

Cattle Feed Plant, Palanpur Banas Dairy,

PO Box- No. 20

Palanpur – 3850 01

Landline: 02742 – 253881 to 85 (Ext: 348 / 343)

Address for Pre - Bid Meeting:

Purchase Department,

Main Administration Building,

Banas Dairy, Post Box – 20,

Palanpur – 385001

Correspondence details for Bid Submission and all other communications:

Purchase Department,

Main Administration Building,

Banas Dairy, Post Box – 20,

Palanpur – 385001

Email: tender@banasdairy.coop,

Landline: 02742 – 253881 to 85 (Ext: 216 / 316)

Instructions for Submitting Tender Bid

1. Tender bid can be sent by post/ courier or submitted by hand at our office by time as specified in tender notice. Tenders received late will be rejected.
2. Bid can be submitted by hand or by post/ courier. For bids submitted by post or Courier, it is bidder's responsibility that bid reaches our office on or before the scheduled time and date.
3. Tender bid should be sent in duly sealed cover, super-scribed with "**Tender for Design, Engineering, Manufacture, Supply, labor job for Installation, Testing and Commissioning of Steam Generating Plant (Boiler) of 1 TPH for 600 TPD Cattle Feed Plant at Palanpur, Gujarat on Turn Key Basis by due date: 16.09.2020**". All the pages of Tender document should be signed and enclosed with the tender bid, as a token of acceptance of all terms and conditions as mentioned in the tender document.
4. All bids shall be opened in the presence of intending parties/ their authorized representative who will be present at the time of bid opening.
5. In case tender opening date is declared a Holiday, bids shall be opened on next working day at the same time specified above.
6. Any certificate/ document not found enclosed with the tender document as required for fulfilling the eligibility criteria of bid may lead to declaring the party as non-eligible and in this event their bid may not be considered and may be out rightly rejected. Bidder has to complete all the Annexure and submit along with this Tender Document signed.
7. Tender form shall be filled up legibly preferably typed giving full name and address of the tenderer, over writing, alterations/additions etc. will disqualify the tender unless such overwriting, alterations/ additions are attested and signed by bidder. Conditional/ telegraphic/ fax/ E-mail tenders shall be rejected.
8. The bidder shall have to enclose following documents along with Tender bid:
 - a. List of all the purchase orders duly indicating the name of client, his address, type & quantity of material and the date of Supply & Installation/ execution during the last 36 months along with at least one performance certificate (or frequent order execution with same supplier) along with copy of the purchase orders executed in the last one year in same firm name and style.

- b. Any document (such as excise/ sales tax document) issued by Govt. or Semi Govt. Department which certifies/proves that the bidder is in business for the required period should be attached along with the Tender Bid.
- c. The bidder shall be registered with the office of competent authority or under statutory bodies at the time of bid opening in the same name and style. In order to support this bidder shall submit any of the following documents:

A copy of the Registration Certificate issued by the Registrar of Companies in case of firms of proprietary nature

OR

Copy of partnership deed in case of partnership firm

OR

Copy of article of association in case of Pvt. Ltd. Companies

OR

Copy of registration certificate for firms registered with NSIC/Central or State Govt. Department/ Local bodies for similar work

OR

Bidder shall enclose/mention the PAN and TAN number of the firm and to support this, he/she shall submit a photocopy of PAN/TAN certificate

OR

Bidder's firm shall be registered with Sales Tax Department. VAT/CST numbers shall be mentioned by the bidder and in support of this; he/she shall submit a photocopy of Sales Tax registration certificate duly renewed by the competent authority

9. Submitted documents shall be numbered and attached serially indicating serial number. Total number of pages enclosed shall be shown in the index.
10. ISO certified company may be preferred to others. A copy of valid license/ certificate should be attached with Tender Document.
11. Tender shall be accompanied with Tender Fees (Non-refundable) of amount Rs. 1000/- and EMD (Earnest Money Deposit) of **Rs. 2,00,000/-**. Tender fee and EMD should be in form of Demand Draft in favor of **Banaskantha District Co-operative Milk Producers' Union**

Limited, payable at Palanpur. Tender bids without Tender Fees or EMD will automatically be rejected.

12. EMD of successful bidders shall be retained as security deposits without any interest till supplies are complete against the Supply Orders issued under this Contract. (i.e. Contract Period Completion)
13. Earnest money of unsuccessful bidder shall be returned after within 60 days from the finalizing of contracts, without any interest on it.
14. Validity of offers should be 120 days from the date of Bid Opening.
15. Rate shall be finalized based on the lowest offer strictly complying with specifications.
16. Parties who have been suppliers of our union or any milk union in the past also have to comply with all these conditions. No relaxation whatsoever shall be given to them.
17. Any offer received after due date or times shall be straightway rejected.
18. Banaskantha District Co.-Operative Milk Producer's Union Ltd., Palanpur, Banas Dairy does not bind itself to accept the lowest bid. Banas Dairy is reserves right to award the job either in part or full. Banas Dairy at its sole discretion and without assigning any reason thereof also reserves the right to accept any/or reject any/or all bids.
19. If any dispute or differences arises at any time between the two parties in respect of or concerning anything contained or arising out of contract shall be referred to sole arbitrator (i.e. our Incharge Managing Director). The decision of the arbitrator shall be final and binding on both the parties.
20. Canvassing in any form will lead to disqualification of the bid.
21. For all legal matters and disputes, Palanpur court shall be the Jurisdiction.

Seen and accepted
Signature of party with office stamp

Eligibility and Qualification requirements:

The bidders must meet the following minimum qualification criteria:

1. The Bidder in the same name and style should be in the similar business for at least five financial years. In case of change of name of bidder by merger / acquisition / change in status, the bidder has to submit documentary evidences.
2. The Bidder's average financial turnover in the same name and style during each of the last five financial years (i.e. 2015-16, 2016-17 ,2017-18, 2018-19 and 2019-20) should not be less than INR 2 crore. Documentary evidences shall be provided as proof of financial turnover.
3. The Bidder in the same name and style shall have successfully executed / completed contracts of similar nature during the five years ending last day of the month previous to the month in which bid is opened, either of the following: -
 - a) One contract costing not less than INR 1.5 crore

OR

 - b) Two contracts each costing not less than INR 1 crore

If the works executed are in foreign currency, cost of the contracts shall be worked out based on contract value multiplied by the value of that foreign currency in INR on the day of publishing the tender notice.

Similar nature of works means the Bidder or its foreign collaborator in the same name and style, should have successfully designed, supplied, installed and commissioned steam generation plant in India or abroad.

Copy of the purchase orders and their Completion certificates for the works mentioned in the qualification criteria shall also be submitted.

4. Even though the Bidder or its foreign collaborator meet the specified criteria, the bid may be disqualified in case the bidder has:
 - a) Made untrue or false declaration in the forms, statements and attachments submitted in proof of their qualifications.
 - b) Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion or financial failure etc.

General Terms and conditions for Bid

1. Project Completion Period shall be within Five Month from the date of Purchase Order / LOI.
2. Offers should be strictly according to our specification and scope of work, failing which it may not be considered. Item to be supplied has to be strictly as per Annexure for Scope of Work & Technical Specifications.
3. The officers of our Union shall be allowed to inspect the works and/ or any document referred to in the tender. If it is found that the declarations made by the bidder in Bid are false/ misleading/ faulty, the bidder shall be disqualified and the earnest money deposit submitted shall be forfeited.
4. Comprehensive Warranty/ Guarantee (including repairs and replacement) for all items/ goods supplied shall be as detailed and mentioned in technical specifications and scope of work.

This Comprehensive Warranty/ Guarantee shall remain valid till warranty period mentioned in technical specification after the Goods have been delivered at site, installed and the system successfully tested, commissioned and accepted by the Purchaser.

Any complaint during this warrantee/ guarantee shall be attended to within 24 hours by the bidder at no cost. Upon receipt of such notice or complain, the Supplier shall, with all reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Purchaser. If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

The bidder warrants that the goods and equipment, supplied, installed and commissioned under the Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The supplier further warrants that the goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except insofar as the design or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination.

The Supplier also guarantees that the Goods supplied shall perform satisfactorily as per the designed/ rated/ installed capacity as provided for in the Contract.

The Supplier shall guarantee the complete installation for satisfactory performance for a minimum period mentioned in technical specifications from the date of commissioning. Any defect arising out of faulty installation or use of substandard material or workmanship shall be rectified by the Supplier at his own cost.

Please Note:

- Initial acceptance of goods is not the final acceptance of quality.
 - In case materials/ services are found to be substandard at any level, on receipt of the same Banas Dairy reserves the right to reject the material outrightly. Labor Charges, if any will also be recovered from the bidder. Banas Dairy reserves the right to send your material for testing at any laboratory of our choice and in case the result is found unsatisfactory, it also reserves the right to take any action as deemed fit.
 - Supplier's warrantee certification should be provided as per warrantee/ guarantee mentioned herewith along with operational & maintenance manual.
 - The Contract shall be interpreted in accordance with the laws of the Union of India
5. Inspection and Tests: The Purchaser or its representative shall have the right to inspect and/ or test the Goods to confirm their conformity to the Contract. The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and/or at the Good's final destination.

Should any inspected or tested Goods fail to conform to the Specifications, the Purchaser may reject them and the Supplier shall either replace the rejected Goods or make all alternations necessary to meet specification requirements free of cost to the Purchaser.

The Purchaser's right to inspect, test, and where necessary, reject the Goods after the Goods arrival at the destination shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to Goods shipment.

6. Supplier will be responsible to organize pre-visit of the site before initiation of any supply and also will be required to submit detailed report regarding the readiness of site.
7. Storage of Equipment: The Supplier shall be responsible for the proper storage and maintenance of all materials/ equipment under Supplier's custody. Purchaser will provide open land for the same and required shed shall be arranged by supplier. Supplier shall take all required steps to carry out frequent inspection of equipment/ materials stored as well as erected equipment until the same are taken over by the Purchaser.

7.1 The Supplier's inspector shall check stored and installed Goods to observe signs of corrosion, damage to protective coating to parts, open ends in pipes, vessels equipment, insulation resistance of electrical equipment etc. The Supplier shall immediately arrange a coat of protective painting whenever required. A record of all observations mentions on Goods, defects noticed shall be promptly communicated to the Purchaser and Purchaser's advice taken regarding the repairs/rectifications. The

Supplier shall there carry out such repairs/ rectifications at Supplier's own cost. In case the Supplier is competent to carry out such repairs/ rectifications, the Purchaser reserves the right to have this done by other competent agencies at the Supplier's responsibility and risk and entire cost for the same shall be recovered from the Supplier's bills.

- 7.2 The Supplier's inspector shall also inspect and provide lubrication to the assembled Goods. The shafts of such equipment shall be periodically rotated to prevent rusting as well as check freeness of the same.
- 7.3 The Inspector shall check for any signs of moisture or rusting in any Goods.
- 7.4 If the commissioning of Goods is delayed after installation of the Goods, the Supplier shall carry out all protective measures suggested by the Purchaser during such period.
- 7.5 Adequate security measures shall be taken by the Supplier to prevent theft and loss of Goods handed over to the Supplier by the Purchaser. The Supplier shall carry out periodical inventory checks of the Goods received, stored and installed by the Supplier and any loss noticed shall be immediately reported to the purchaser. A proper record of these inventories shall be maintained by the Supplier. The Supplier should not sell, assign mortgage, hypothecate or remove Goods which have been installed or which may be necessary for completion of the work without the written consent of the Purchaser.
- 7.6 Suitable grease recommended for protection of surfaces against rusting shall be applied over Goods as required once in every six months.
- 7.7 All the necessary Goods required for protection as described above shall be arranged by the Supplier and such cost shall be included in the Contract Price.

8. Testing and Commissioning:

- 8.1 The Supplier shall operate, maintain and give satisfactory trial run of the equipment satisfactorily for a maximum period as mutually agreed by supplier/ purchaser/ owner of the equipment at the rated output. All rectification of damages/ defects and routine trouble shooting should be carried out by the Supplier.
- 8.2 During this period, Supplier shall incorporate/ execute necessary minor modifications during the trial period for maximizing operational efficiency. The Supplier should also execute minor modifications as may be suggested by the manufacturer/ Purchaser. The supplier shall suggest recommended log sheet Performa for recording necessary operating data and pass it on to the Purchaser in proof of satisfactory rated output and performance of the equipment.
- 8.3 The Supplier shall demonstrate proper working of all mechanical and electrical controls, safety and protective device, in presence of the Purchaser's engineer and the same should be duly recorded.
- 8.4 After conducting testing, in case particular equipment is not working properly or not giving rated output the Supplier will furnish a detailed report to the Purchaser stating therein the detailed account of the performance of the equipment with possible reasons for improper or not working of the same.

8.5 Further, before the commencement of testing or commissioning, the Purchaser reserves the right to invite the original manufacturer's representative at the cost of the Suppliers for start-up help, assist and guide the Supplier during commissioning in any of following cases:

- a. The Supplier has no previous experience of commissioning and start-up of the similar equipment
- b. The Purchaser is of the opinion that the Supplier is not capable to commission and start-up of certain specific equipment

However, in either of the cases the manufacturer's representatives would be called with prior information to the Supplier and the Supplier will have to extend all co-operations to such representatives in good spirit and in the interest of the work.

The necessary quantities of consumables, miscellaneous spares etc., required for the installation, commissioning, testing and start-up of all the equipment till handing over are to be supplied the Supplier and nothing extra would be paid for these.

9. **Cleaning of Site:** All soils, filth or other matters of offensive nature taken out of any trench, drain or other places shall not be deposited on the surfaces, but shall at once be carted away by the Supplier from the site of work for proper disposal.

The Supplier shall not store or place the equipment, materials or erection tools on the drive ways and passages and shall take care that his work in no way restricts or impedes traffic or passage of men and materials during erection, the Supplier shall without any additional payment, at all time keep the working and storage area used by him free from accumulation of dust or combustible materials, waste materials rubbish packing, wooden planks to avoid fire hazards and hindrance to other works.

If the Supplier fails to comply with these requirements in spite of written instructions from the Purchaser, the Purchaser will proceed to clear these areas and the expenses incurred by the Purchaser in this regard shall be payable by the Supplier. Before completion of the work, the supplier shall remove or dispose off in a satisfactory manner all scaffolding, temporary structures, waste and debris and leave the promises in a condition satisfactory to the Purchaser. Any packing materials received with the equipment shall remain as the property of the Purchaser at the completion of his work and before final payment; the Supplier shall remove and shall restore the site to neat workman like conditions at his cost.

10. **Risk Purchase:** In case of delayed supplies/ erection/ commissioning, purchase/ execution of work may be completed at the risk, cost and responsibility of the supplier after expiry of scheduled date without any notice. Extra amount spent on Risk Purchase/ completion of work shall be adjusted against the earnest money/ pending payments or same shall be recovered from your firm.

We will reserve the right to effect risk purchase/ execution of the work in case of non-fulfillment of any of various terms and conditions of the contract by the supplier at his risk & cost.

11. **Import license and foreign exchange variation:** No import license shall be provided by the BANAS DAIRY for goods offered against this bid. Necessary clearances/ licenses from the concerned Authorities for any imported goods/items offered shall be obtained by the bidder at his cost & responsibility.

Non-availability of or delay in obtaining license/ clearance shall not, under any circumstances, entitle the bidder to seek any compensation/relaxation under the contract and/or relieve the bidder from any of his obligations under the contract. Foreign Exchange, Duties etc. variation, if any, shall also be to the account of the bidder and no price escalation will be given.

12. **Maintaining ethical standards in business:** It is highly necessary for the suppliers to ensure that business ethics are maintained at the highest degree with Our Union. In no case we will be able to tolerate any unethical practice by the supplier by way of offering either cash or in kind or compensation in any form either to get the rejected material accepted or to get higher volume of the business than the approved quantity.

By any chance if it comes to our notice that you or any of your employee/ representative/ Agent has tried to initiate such unfair business practices with any of our employee or any of the employee/ decision maker of our Union even with/ without any documentary evidences, the same shall be considered as a cancellation of Purchase order. and we reserve our right to terminate/suspend the Purchase order and the contract during any time without assigning any reason thereof.

13. **Insurance:** The goods supplied under the contract shall be fully insured against loss or damage incidental to manufacturer or acquisition, transportation, storage & further installation at site and till successfully handed over to purchaser along with delivery in the manner specified in the special conditions of contract. If any loss or damage occurs during supply of goods under contract, the supplier shall make arrangement for repair and replacement of any damaged, item/s in stipulated time.

The Supplier shall provide a copy of the insurance policy along with invoice to the purchaser

14. **Performance Security:** Successful bidder shall be required to furnish a performance security in form of Bank Guarantee of 10 % Value of the executed order valid for entire warranty period from the date of successful commissioning Trial and Acceptance by Purchaser. In case of failure in submission of appropriate bank guarantee, same amount will be retained from supplier's bill. Bank Guarantee should be from any Nationalized Bank having at least one branch at Palanpur.

If the bid of the successful bidder is seriously unbalanced in relation to BANAS DAIRY's estimate of the real cost of the work to be performed under the contract, BANAS DAIRY may require additional performance security to protect BANAS DAIRY against financial loss in the event of subsequent default of the successful bidder under the contract. The value of the additional performance security shall be decided by the Purchaser based on mutual discussions with the successful bidder. The additional performance security shall be valid until the delivery of such items or as the Purchaser may decide. This security shall be released on completion of execution of those items against which the additional security is obtained.

15. **Delay in Project:** For delay in Supply, Installation & Commissioning of goods, a late penalty @ 0.5% per week shall be deducted subject to a maximum of 5 % of the contract price. On further delays order shall be liable to be cancelled. However, our Incharge Managing Director can waive off such penalty depending upon the reasons for delay.
16. **Delivery of Goods:** Material shall be delivered at the destination as specified in the Purchase Order on any working days (except Sundays & holidays)
17. **Payment Terms: Material / Equipment Supply:** 20% advance for supply value shall be payable against Advance Bank Guarantee of equivalent amount valid till schedule date of delivery/ actual delivery of materials.

60% of each billed amount within 15 days of safe receipt of the material at destination / site after inspection and approval / acceptance by the purchaser.

20% of the contract price of the goods on FINAL ACCEPTANCE of plant on completion of other contracted services and accepted by the purchaser's representatives within the scope of this contract AGAINST PERFORMANCE BANK GUARANTEE OF 10% of contract value.

Payment for installation, testing and commissioning

100% of the contract price shall be paid on FINAL ACCEPTANCE of plant on completion of other contracted services and accepted by the purchaser's representative within the scope of this contract.

All payments under this contract shall be made in Indian Rupees only.

Note: Erection/ commissioning should, however, be completed within 20 days of the receipt of respective material at site in any case.

18. Other Commercial Terms and Conditions:

- a. Invoices will be raised in the name of Banaskantha Dist. Co-Op. Milk Producers' Union Ltd., Palanpur
- b. Supplier will be required to submit two copies of invoices
- c. All the taxes will be charged in Invoice
- d. In case of any change in tax rate, the same shall be applicable as per statutory norms

19. Force Majeure: If any Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

20. Purchaser's Instructions: The Purchaser may in his absolute discretion, issue from time to time drawings and/ or instructions, directions and clarifications which are collectively referred to as Purchaser's instructions. These instructions will be binding on the supplier.

21. Training of Personnel: Necessary staff, as may be deputed by the Purchaser, shall be trained by the Supplier for operating the equipment. The personnel will be associated for the training during the installation, testing, commissioning and start-up period and the training tenure can be extended for a period of one week from the date of commissioning and start-up.

22. Approvals:

22.1 The Supplier shall obtain the necessary approvals of the Factory inspector, Boiler Inspector, Electrical Inspector, Weights & Measures Inspector, Explosive Inspector, and any other state and local authorities as may be required and the cost of obtaining such approvals shall be included in the Contract Price. All the necessary details, drawings, submission of application and proforma will be furnished by the Supplier to the purchaser for verification/ signature. The necessary application duly filled-in, together with the prescribed fees shall be submitted to the appropriate authorities by the Supplier on behalf of the Purchaser, however all the actual statutory prescribed fees paid by the Supplier shall be reimbursed by the Purchaser upon production of the receipt/vouchers

22.2 Wherever necessary or required, the Supplier shall furnish the necessary test and/or inspection certificates etc. from the appropriate authorities as per IBR, IER and other statutory regulations and the cost for obtaining these certificates shall be included in the Contract Price.

23. **Jurisdiction:** This invitation for bids is issued for and on behalf of Banaskantha District Co-

operative Milk Producers' Union Ltd. having its head office situated at Palanpur (Gujarat), for the settlement of any dispute arising out of the contract against this bid, only the Courts at Palanpur shall have jurisdiction.

24. **Data on firm:** Please send data on your firm and information in the enclosed Annexure. The tender bid received without above information or with incorrect information may not be considered.

25. Documents Establishing Bidders' Eligibility and Qualifications

Bidder shall furnish, as part of its bid, documents establishing the Bidder's eligibility to bid and its qualifications to perform the Contract if its bid is accepted.

The documentary evidence of the Bidder's eligibility to bid shall establish to the Purchasers satisfaction that the Bidder, at the time of submission of its bid is eligible to bid as defined.

The documentary evidence of the Bidders qualifications to perform the Contract if its bid is accepted, shall establish to the Purchaser's satisfaction:

- a. That, in the case of a Bidder offering to supply goods under the Contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized by the goods' manufacturer or producer to supply the goods. The bid shall include Manufacturers' Authorization Form in their letterhead. Offers from other agencies, brokers and middlemen will not be accepted.
- b. That, the Bidder has the financial, technical and production capability necessary to perform the Contract. To this end, all bids submitted shall include the following information;
 - I. Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company or firm or partnership etc.
 - II. Details of experience and past performance of the bidder on the contracts of similar nature within the last 7 years and details of current contracts in hand and other commitments. Bidder should meet the minimum qualifying criteria to be eligible for award of contract.
 - a) The Bidder should be a manufacturer/ authorized representative of a manufacturer who must have designed, manufactured, tested and supplied the equipment(s) similar to the type specified in the Schedule of Requirements which shall be in successful operation as on the date of bid opening.

- b) Bidders shall invariably furnish documentary evidence (Client's certificate) in support of the satisfactory operation of the equipment as specified above
- III. The bidder should furnish a brief write-up, backed with adequate data, explaining his available capacity (both technical and commercial) for manufacture and supply, installation and commissioning of the required equipment within the specified time of completion, after meeting all their current commitments.
- IV. The bidder should confirm that all the facilities exist in his factory for inspection and testing and these will be made available to the Purchaser or his representative for inspection.
- V. Major items of plant and equipment available/ installed in the Bidder's factory premises;
- VI. Qualification and experience of key personnel for successful execution of the contract;
- VII. Reports on financial standing of the Bidder such as profit and loss statements, balance sheets and auditor's report of the past five years, bankers certificates etc;
- VIII. Information regarding any current litigation in which the Bidder is involved.

Bidders who meet the criteria given above are subject to be disqualified, if they have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification requirements or have record of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion or financial failure etc.

Documents Establishing Goods' Eligibility and Conformity to Bidding Documents

Bidder shall furnish, as part of its bid, documents establishing the eligibility and conformity to the Bidding Documents of all goods and services, which the Bidder proposes to supply under the Contract.

The documentary evidence of the goods' and services' eligibility shall consist of a statement in the Price Schedule on the country of origin of the goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.

For purpose of "origin" means the place where the Goods were mined, grown or produced, or from which the Services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

The documentary evidence of the goods' and services' conformity to the Bidding Documents may be in the form of literature, drawing and data, and shall furnish:

- a. A detailed description of the goods' essential technical and performance characteristics, schematic drawings etc., if any.
- b. A list giving full particulars, including available sources and current prices, of all spare parts, special tools, etc. necessary for the proper and continuous functioning of the goods for a period of two years, following commencement of the goods' use by the Purchaser.
 - I. A statement of deviations and exceptions to the provisions of the technical specification in the format furnished in the bidding document (Technical Deviation Statement Form) and a clause by clause commentary on the deviations demonstrating the goods' and services' substantial responsiveness to the purchaser's specifications despite the deviations.
 - II. Bidders wishing to offer technical alternatives to the requirements of the bidding document must also submit a bid which complies with the requirements of the bidding document, including the basic technical design as indicated in the drawings and specifications. In addition to submitting the basic bids, the bidder shall provide all information necessary for a complete evaluation of the alternative by the Purchaser, including design calculations, technical specifications, break-up of the prices and other relevant details. Only the technical alternatives, if any, of the lowest evaluated bidder conforming to the basic technical requirements shall be considered by the purchaser.

26. Award Criteria

- A. Purchaser will award the contract to the successful bidder whose bid has been determined to be substantially responsive provided further the bidder is determined to be qualified to perform the contract satisfactorily
- B. The Purchaser reserves the right to vary the quantities at the time of award of the contract, if the need arises, in consultation with the successful bidder.

Annexure-1: Notification

Interested Bidders who have downloaded tender form from our website will be required to notify Purchase Department of Banas Dairy at e-mail id: *tender@banasdairy.coop*.

Format of Notification

To,
Purchase Department,
Banas Dairy, Post Box- 20,
Palanpur-385001

Subject- Notification of Downloading of Tender Document

Dear Sir,

In reference to above cited subject, we..... *[Name and Address of Bidder].....*, have downloaded "Tender Document for Design, Engineering, Manufacture, Supply, labor job for Installation, Testing and Commissioning of Steam Generating Plant (Boiler) of 1 TPH for 600 TPD Cattle Feed Plant at Palanpur" and are interested to quote for the same before the scheduled deadline.

Hence in this regard, we request you to please send us all relevant communications (including clarification issued by Banas Dairy to various others interested Bidders and any amendments in Tender Document) at following Contact Details:

Name of Bidder Firm:	
Name of Concerned Person:	
Business Address:	
E-mail Address:	
Contact No:	
Mob No:	

Annexure- 2: Tender Enquiry Data Sheet

The following specific data for this Tender Enquiry shall complement, supplement, or amend the provisions in the Invitation in Tender and Instructions to Bidders. Whenever there is a conflict, the provisions herein shall prevail over those in the ITB.

Name of the Purchaser: Banaskantha District Co-operative Milk Producers' Union Ltd., Palanpur
Description of Goods: Tender for Design, Engineering, Manufacture, Supply, labor job for Installation, Testing and Commissioning of Steam Generating Plant (Boiler) of 1 TPH for 600 TPD Cattle Feed Plant at Palanpur, Banaskantha Gujarat on Turn Key Basis.
Purchaser's Address: PB NO: 20, Palanpur-385001, Banaskantha, Gujarat, India
Submission of Queries on T/E Document: Not later than– 31.08.2020 till 15:00 hours, to the following e-mail: tender@banasdairy.coop
Pre- Bid Meeting: On 02.09.2020, 11.00AM at Main Dairy Plant at Palanpur (Gujarat)
Bid Validity: Validity of bid shall be no less than 120 days from the date of Bid Submission
Required number of copies of the Tender: Two (Original plus one photocopy and clearly mention ORIGINAL & COPY on photocopy).
The address for Tender submission: Purchase Department, Banaskantha District Co-operative Milk Producers' Union Limited Banas Dairy, PB NO 20 , Palanpur : 385001, Dist : Banaskantha
Due date (Deadline) for Bid submission: 16.09.2020 at 1.30 P.M.
Opening of Quotation: 16.09.2020 at 3.00 P.M.

Annexure-3: Commercial Bid Format / PRICE SCHEDULE

Sr. No.	Item Description	Qty.	UNIT	Total Amount (INR)
Part-1	Design, Engineering, Manufacturing & Supply of 1 TPH Dual-fired (FO/NG) 3 passes fully wet-back shell Boiler and fuel handling system & associated Utility works for Cattle Feed Plant Palanpur (Gujrat), Banas Dairy: (Inclusive of P & F, Insurance, Transportation, GST, any other charges if any, etc.)	1	LOT	
Part-2	Labour Job of Installation, Testing & Commissioning of 1 TPH Dual-fired (FO/NG) 3 passes fully wet-back shell Boiler and fuel handling system & associated Utility works for Cattle Feed Plant, Palanpur (Gujrat) Banas Dairy: (Inclusive of GST, any other charges if any, etc.)	1	JOB	
TOTAL (In figures as well as in words):(1+2) inclusive of all taxes ,duties, freight, insurance etc. (Cattle Feed Plant Palanpur (Gujrat), Banas Dairy)				INR: In Words:

Detailed Price Break Up is to be mandatorily be provided by Bidder in Annexure 2A

We agree to Design, Execution, Supply, install and demonstrate the performance of the above items as mentioned in the tender document of contract price quoted against each item within the period specified. We also confirm that all comprehensive warranty/ guarantee period applicable shall be as per mentioned in Technical Specification for all items.

The above mentioned bid price includes all those items also, which may not be mentioned in Tender Document but are essential for normal functioning of Required Pressure of Boiler.

Signature of Bidder:

Name:

Business Address:

Mobile No.:.....

Email ID:.....

Place:

Date

Annexure 2 A: Price Break Up of Bid Price (Format)

Sr. No.	Item Description	Quantity	Basic Unit Rate	GST / Taxes	Freight Charges (incl. Insurance)	Other Charges (if any)	Installation Charges (incl. Service Tax)	Landed Unit Rate	Amount (Landed Unit Rate* Quantity)
MS components Supply and Installation									
Mechanical Equipment Supply and Installation									
Electrical Equipment Supply and Installation									
Piping Work									
Certification Charges									
Any other material Equipment									

Note:

- Bidder is mandatorily required to provide the detailed price of the quoted bid price as per above mentioned format
- Above mentioned format is indicative in nature and bidder may choose to provide requisite price break up detail as per their applicable format
- Bidder is required to take in to account all the items/ equipment/ services, which may not be mentioned in the tender document but are essential for the completion of project as per their assessment. No extra payment shall be made for items/ quantities which has not been mentioned by the bidder.

Annexure- 3: EMD Details

1. Earnest Money Deposit Details (Rs. 2,00,000/-)

Details of Bank draft:

No. _____

Dated _____ Drawn On (Name of Bank) _____

EMD Amount Rs. _____

(Rupees in words

(_____)

I/we have read the instructions carefully and accordingly submitting the tender as per the terms and conditions as given in the tender notice for **“Design, Engineering, Manufacture, Supply and, labor job for Installation, Testing and Commissioning of Steam Generating Plant (Boiler) of 1 TPH for 600 TPD Cattle Feed Plant at Palanpur, Gujarat on Turn Key Basis”**

Date:

Signature of the Party

With office stamp

Annexure- 4 : Turnover Details

Financial Year	Turnover (In Rupees)
F.Y.2019- 20	
F.Y.2018-19	
F.Y.2017-18	
F.Y.2016-17	
F.Y.2015-16	

Annexure- 5: Summary of Orders Executed

Name of the Bidder: _____

Execution of Similar Projects during July 2017 to June 2020: _____

Name of Dairy/ Reputed Organization	Description of the Project Executed	Month - Year	Total Value (in Rs Lacs)

Note: Purchase Order copies should be enclosed in support of the above.

Date:

Seal of Company & Signature of Authority

Annexure 6: Scope of work & Technical Specifications:

SCHEDULE OF REQUIREMENT:

Sr. No.	Item Description	Qty	Project Completion Period
1	Design, Engineering, Manufacture, Supply, labour job for installation, testing and commissioning of 1 TPH dual fired (FO / NG) 3 passes fully wet-back shell boiler for Cattle Feed plant on turnkey basis.	1 Job	5-Months

DESIGN BASIS AND TECHNICAL SPECIFICATIONS:

1. Introduction: Cattle feed plant Palanpur has production of more than 600 MT/Day (Daan) and currently Cattle Feed Plant Palanpur has two boilers & each has rated capacity of 1 TPH (1W+1S). Need to replace the existing boiler (GT3955) with 1 TPH dual fired (FO/NG) 3 passes fully wet-back shell boiler.

This section of the bidding documents outlines the technical specifications for the Design, Manufacture, Supply, Erection, Testing and commissioning of the 1 TPH dual fired (FO/NG) 3 passes fully wet-back shell boiler for Cattle Feed plant on turnkey basis.

These technical specifications are for the guidance of the bidders only and not intended to bring out all the details of design and fabrication of the equipment or equipment components. The successful Bidder shall be fully responsible to undertake all the work involved in the design, engineering, manufacture including the erection, testing and commissioning of the steam raising equipment's & associated fuel & service requirements.

Bidders are to note that the steam generation plant being offered in this bid shall be on Turnkey basis, within the battery limits. The work being carried out shall confirm to high standards of engineering design & workmanship. The equipment offered shall be capable of performing in continuous commercial operation to meet agreed performance standards and acceptable to the purchaser/client. No exclusions of any nature are acceptable, other than those specifically detailed in this bidding document

The bidders are required to provide all technical data / information wherever asked for. Any bid not following the bid format structure or provided with insufficient technical data/information/documents is liable to be considered as non-responsive.

The Purchaser will interpret the meaning of various equipment specification and drawings submitted by the bidder and shall have the right to reject any material/equipment, which in their opinion is not in full accordance to tender specifications.

2. Design Basis:

Cattle feed Plant, Palanpur has to replace existing boiler (GT3955) with new dual fire (FO/NG) 1 TPH boiler to produce high quality steam to match the demand.

SCOPE OF WORK

The scope of the work is as follows:

Design, detailed engineering, manufacturing, inspection at manufacturer's works, packing, forwarding, unloading, erection, testing, commissioning, achieving rated equipment and plant capacities and handing over to purchaser's satisfaction of the following as given section-wise in the list below:

BRIEF DESCRIPTION OF WORK SCOPE:

The scope of successful bidder shall include the following;

- **1 TPH dual fired (FO/NG) 3 passes fully wet-back shell boiler;**
- **Steam in Dry saturated condition** from the Boilers is required to meet the moisture to raw material, cooking and to helpful to binding the pellet.

STEAM GENERATION:

The scope of works involves Design, supply, installation, testing, commissioning of 1 TPH dual fired (FO/NG) Boilers with electric heater, Gas Train, ducting, HP steam piping to battery limit.

WATER:

RO Water shall be tapped from Boiler Water Feed Tank (Existing System). The feed water is pumped to Boiler tube.

FUEL HANDLING SYSTEM:

The Furnace oil received from tanker is unloaded in 2 * 20 KL capacity existing storage tank. Then via pump, Furnace oil transferred to 990 L service tank. Bidder scope start from the day tank of 990L

ELECTRICAL & AUTOMATION:

All electrical & automation works related to the feed water handling (Pumping), fuel handling, Steam generation, Pollution Control equipment is included with necessary hardware & software.

COMPRESSED AIR PIPING:

Air is available at site, only tubing to be done.

STRUCTURAL STEEL WORKS:

Required structure, Platforms, Equipment approach & base frame is in the scope of Bidder & necessary support s of piping etc.

STATUTORY REQUIREMENTS:

Statutory approval from Boiler Inspectorate and submission of documentation & drawings from state PCB is included in the tender scope.

General:

The list given below of equipment is as per preliminary design of the plant by Purchaser. The detail list of equipment & their individual capacity may vary as per design and detailed engineering by the bidder to achieve rated 1000 kg/hr steam generation of **1 TPH capacity** as specified in design basis & battery limits.

If required, the bidder can break-up an item into further detail but wherever purchaser has indicated quantity as one lot, no further detail is required. Bidders may add additional items section wise if these are required as per their detail engineering. These additional / optional / alternatives items offered by the bidder will be considered during technical evaluation of the bids and would be subjected to acceptance by the purchaser only through addendum of the tender document.

1 TPH DUAL FIRED BOILER, EQUIPMENT & RELATED WORKS

The bidder shall execute the following major works as per the scope;

S.NO.	DESCRIPTION
1.	1 TPH Dual-fired (FO/NG) 3 passes fully wet-back shell Boiler , horizontal package type, fire tube Boiler complete with insulation, internals, nozzles, manholes, MS platform, built-in safeties, openable doors, brushes, essential tools etc.
2	Insulated FO service Tank complete with nozzles, internals etc.
3.	Fuel Oil System: Furnace oil pumps, pipes, valves & fittings, oil pressure Boosting system, etc. And gas train to supply PNG for burner. Vortex type Gas flow meter
4	All standard Boiler mountings & other fitments complete.
5	Structural Steel Pipe bridge, platform, Trench covers, staircase /ladder, railing etc.
6.	HP & LP steam pipes (Steam piping from boiler to Existing steam Header), steam valves, strainer, expansion loop and fittings including drain trap assembly etc.
7.	Boiler Control panels- Panel shall be single front and non-compartmentalize type with PLC / HMI, Indicating Lamp, Contactor, Relay Card, MCB, Connector, SMPS, Cable Gland, Overload Relay / MPCB, Push Button, Main Switch, Emergency Stop, Single Phase Preventer, Cooling Fan, Panel Lighting, Alarm, power & control cabling, GI cable tray, Rubber mats, level sensors, temperature sensors, instrumentation, controllers, earthing network, GI flats, earth pits with electrodes etc.
8.	Automatic & Main blow-down valves, Conductivity sensor & Control system.
9.	Spares for 2 years.
10.	Statutory approvals for Boiler & documents for Pollution Control equipment.

- All consumables like Gear oils, lubricants, packing for flanged joints etc. and commissioning spares, required if any, for installation, testing & commissioning till taking over the plant (by the purchaser), shall be provided by bidder and the same after taking over the plant shall be provided by purchaser.
- Test runs and commissioning trials including imparting training for operation and maintenance

➤ **STATUTORY REQUIREMENTS**

The Mechanical and Electrical design, performance and function of the main equipment/parts and their accessories, including control and instrumentation panels, shall comply with the latest relevant Indian standards. Safety and other statutory regulations/ requirements shall comply with that being followed in the country. Electrical works shall comply with the latest Indian Electricity Rules and other statutory regulations/ requirements of power supply authorities and Chief Electrical Inspectorate.

1 TPH Dual fired Boiler including HP piping shall be complying with IBR norms & approved by the Boiler inspectorate, both during stage-wise manufacture till despatch and finally before commissioning.

Approval for Installation of 1 TPH Dual fired Boiler, piping, valves & Pollution control equipment's executed by the successful bidder shall be obtained above statutory authorities and any modifications or changes if suggested by the authorities, the same shall be carried out by the bidder without any additional cost.

The original Approval documents/ certificates, Plan / Drawing approval from statutory authorities, shall have to be handed over to the purchaser.

Any Statutory fees paid on behalf of purchaser, shall be reimbursed on submission of original receipt.

3.0 TECHNICAL SPECIFICATION- FOR THE DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, TESTING AND COMMISSIONING OF 1 TPH DUAL FIRED (FO/PNG) 3 PASSES FULLY WET-BACK SHELL BOILER

The scope of work covered in this bidding document is described and specified as under;

Part A	Design, Engineering, Manufacturing, Supply of 1 TPH Dual-fired (FO/NG) 3 passes fully wet-back shell Boiler and fuel handling system & associated Utility works for Cattle Feed Plant, Banas Dairy, Palanpur.
Part B	Labour job of Installation, Testing & Commissioning of 1 TPH Dual-fired (FO/NG) 3 passes fully wet-back shell Boiler and fuel handling system & associated Utility works for Cattle Feed Plant, Banas Dairy Palanpur.:

The scope includes related works HP steam pipes, steam valves, and fittings including drain trap assembly, Electrical & Instrumentation.

FUNCTIONAL REQUIREMENTS

General Description: Boilers are required to generate dry saturated steam for entire Cattle feed plant, Banas dairy Palanpur. The boiler will have **3 passes fully wet-back shell type**, horizontal package type, fire tube Boiler with adequate steam space to cater to varying steam load, depending on process requirements.

3.1. DESIGN REQUIREMENTS

S.No.	Parameter	Requirement	Remark
1.0	Net Steam Generation capacity	1 TPH	Feed Water Temp 30'C
2.0	Fuel	FO / NG	Dual fired
3.0	Peak steam demand	1000 KG/HR	Present Cattle Feed Plant demand
4.0	Design pressure	10.54 kg/sq.cm (g)	
5.0	Steam Condition	Dry saturated	Minimum 0.98 Dryness Fraction
6.0	Efficiency of Boiler	89% on NCV	

7.0	Combustion type	Electronic compound regulation	
8.0	Burner	Mono block Pressure jet	Turn down ratio of 1:3.5 on FO & 1:5 on NG, with separate
9.0	Steam generator type	Smoke tube package construction	As per IBR Rules & regulations
10.0	Accessories	All standard accessories	All the boiler mountings, fittings, feed water pumps, Panel
11.0	Other accessories	Vortex type steam flow meter, HP Gas train Furnace oil flow meter Water flow meter 990 L FO tank with accessories	
12	Boiler house piping	From Existing Feed water tank to Feed water pump with all the accessories, FO Day tank to Burner inlet and return with all the accessories. Blow down line. Safety valve and air vent lines. Ducting to existing chimney, Steam Piping from main steam stop valve to existing header	
13	Insulation & Cladding	Insulation of boiler and cladding with CRCA sheet, insulation of pipe lines & ducting, steam line up to header	
14	Services	Erection & commissioning of the boiler. Provisional firing order of boiler	

STATUTORY REQUIREMENTS

The minimum requirement shall be as per the details furnished hereunder.

- a. Boilers should comply with the latest Indian Boiler Regulations (IBR), Pollution Control Board (PCB) and other statutory regulations/ requirements.
- b. The electrical equipment, installation should comply with the latest Indian Electricity Regulations, CEIG and the EB regulations of the state in which the boiler is installed.
- c. The supplier should obtain necessary approval for entire supplies in the scope of work, from the local statutory authorities and any modifications or changes if suggested by the authorities, the same shall be carried out by the supplier without any additional cost.

IBR approval certificate/ documents shall be handed over to the purchaser.

Scope of Supply:

Capacity: 01 TPH

The complete boiler having steam generating arrangements, casing, burners and all necessary accessories is to be supplied. The main boiler unit shall be provided with the following as *minimum*:

- Pressure parts consisting of fusion welded shell, flue tube, tube plates, tubular passes, end plates, reversing chambers, stay tubes/bars, steam drier units with all associated accessories
- The furnace is to be designed for obtaining optimum volumetric heat release rate for complete combustion by taking into consideration the flame patterns of the burner. The size of furnace must confirm to the latest international standards and local regulations.
- Front and back smoke boxes
- Front casing with hinged main doors. The design and fixing arrangement must ensure clear inspection as well as efficient cleaning of all the tubes. Access to the combustion chamber should be through bolted refractory lined access door whereas tube nest should be exposed through hinged mounted front door. Boiler front door is to be lined with ceramic fiber blanket with SS sheeting on the tube side of the door.
- Rear casing with removable doors so as to facilitate easy access to furnace for maintenance.

- Spring loaded explosion door & 2 nos. fusible plugs (one no. on front tube plate and on the wrapper plate of reversal chamber) to be provided for ultimate safety.
- The insulation thickness on the boiler shall be minimum 100 mm of 150 kg/m³ density. The insulation on boiler shall be cladded with 22 SWG aluminum Stucco sheets. The temperature of outer shell shall not be more than 10-15 deg C above ambient.

Mono-block Burner:

Burner and accessories

Fully automatic and step/step-less modulating (25% to 100%), high-pressure atomizing (jet) spill return, forced draught type burner comprising of a mechanical atomizer burner assembly, forced draught combustion air blower with motor, nozzle, ignition transformer with electrode, a solenoid valve, photocell operated safety device and necessary instruments for complete burner management shall be supplied. The burner shall also have provision for oil return and isolating controller to program burner operation for automatic 'cut-in' and 'cut-out' operations. The noise level shall be as per factory standards.

Necessary accessories required in the burner operation on PNG shall also be provided. This shall include but not limited to assembly, ignition transformer etc. All the components required for efficient combustion of PNG in gas nozzle, mixing chambers, gas butterfly valve with modulating mechanism, pilot burner the burner are to be provided.

Burner system shall be suitable for quality of furnace oil and PNG as indicated

The burner shall be monoblock type design (FD fan mounted on the burner). The FD fan shall have sufficient head to take care of additional pressure drop across economizer which may be added in future. Provision in layout to be made for addition / installation of economizer in future. Pump should also be designed considering Economizer in future.

Burner assembly shall be mono block type (without oil pump on the burner – FO shall be supplied through the pumps installed at OPH) and such fixed one. Further, burner must get lit only when the assembly is in a closed position.

Digital combustion Manager shall be supplied along with the burner to ensure sequence of boiler start-up after ensuring required temperature and pressure of oil, air etc.

Boiler mountings, accessories and fitting

The boiler shall have all necessary standard mountings, accessories and fittings for safe and efficient operation of the boiler and in accordance with the latest IBR regulations.

Any item not listed in this specification but required by the statutory regulations shall be supplied by the supplier without any additional cost.

Only major items are described in the table below for each boiler:

Sr. No	Item description	Qty
1	Spring loaded safety valve - full lift type having a total discharge rate exceeding maximum steam generation capacity of boiler with the exhaust pipe to discharge outside the boiler house, installation confirming to IBR	2 Sets
2	Main steam stop valve, piston/ bellows seal type with counter flanges	1 No.
3	Non-return valve for main steam with counter flanges	1 No.
4	Steam stop valve with counter flanges for auxiliary steam connection.	1 No.
5	Steam pressure gauge with siphon tube and cock.	1 set
6	Auxiliary steam connection with cock for fixing test pressure gauge and for removal of air	1 set
7	Water level sight glasses with safety shields and isolating cocks	2 sets
8	High, low and extra low water level alarms with isolating valve and drain point having a drain pipe up to blow down pit.	1 set.
9	Flame observation port /fire view glass of suitable thickness and design shall be of rotating type with blue tinge color glass/plain glass and the glasses not to be exposed to the fire. Necessary cooling arrangement to be provided.	2 nos.
10	Access ladder, service platform and top walkway platform complete with safety hand railings and toe guard	1 set
11	Rigid MS base frame / Saddle (for boiler & other equipment)	1 lot
12	Fusible plug in the furnace tube	2 no.
13	Pressure transmitter for automatic operation	1 set.
14	Flue gas temperature indicator – local as well as in panel (digital type)	1 no. each

Sr. No	Item description	Qty
14	Steam pressure switch for combustion controls by interlocking with burner.	1 no
15	Steam temperature indicator	1 no
16	Water level controller (heavy duty) Mobrey type [1 set for high & low level; and 1 set for extra low level]	2 sets

Controls & Safeties

a.	Oil temperature indicator	1 no.	Local cum panel mounted to indicate oil temperature
b.	Pressure Transmitter with Controller	1 no.	For burner modulation
c.	Photo resistant cell	1 no.	Flame failure and audio visual alarm
d.	Oil Temperature controller	1 no.	To control oil temperatures in burner heater before nozzle with audio visual alarm and burner trip
e.	Sequence controller	1 no.	To control sequence of firing, pre-purging etc.
f.	Low Oil Pressure Switch	1 no.	To trip burner with audio visual alarm
g.	Level controller	1 no.	To trip burner in case of very low level with audio visual alarm.
h.	Single Element Level Control System	1 no	For continuous modulation of boiler drum level.
j	Gas pressure switch high/low	1 no each	To trip burner with audio visual alarm

Gas Train for NG supply to burner

Boiler shall have a suitable size gas train to supply NG to burners. The gas train shall include following:

Inlet Gas pressure at gas train shall be 1.4 Bar (Line size –1.5 inch or 40 mm),
Each Gas train shall consist of:

- Gas Filter 40 NB, Make-Honeywell
- Gas slam shutoff valve MB40/6B, Make- Giuliani
- Gas regulator valve, ST4B40, Make- Giuliani
- Relief Valve MS20, Make- Giuliani
- Gas Pilot Solenoid Valve EG12SR, (1/2)", Make- Honeywell
- Gas Main Solenoid Valve, FAST VE4040A, Make- Honeywell
- Gas Main Solenoid Valve, SLOW VE4040C, Make- Honeywell
- Gas Pressure Switch, QPL25.050, Make-Siemens
- Gas Pressure Switch, QPL25.150, Make-Siemens
- Inlet Pressure Gauge with push button 0-5 Kg/cm², Make : Wika, Radix
- Gas Pressure Regulator, Make :Kromschroder
- Outlet Pressure Gauge with push button 0-250 mbar, Make : Kromschroder
- Pilot Gas Train consist of Ball valve, PRV, Solenoid valve if necessary per OEM.
- Interconnecting pipe line with seamless pipe & pipe fittings
- Vortex type flow meter Make- Forbes Marshall/ E&H/Emerson

Flue gas ducting

Flue gas ducting from boilers to chimney shall be made from MS sheet of thickness & dimensions conforming to standards and shall be provided with necessary baffle plates. Minimum thickness of ducting sheet shall not be less than 3 mm. Opening made at chimney and other terminations shall also be in accordance with the prevailing standards. The cut out made on chimney shall have adequate stiffeners welded on the periphery of the cutout. Entire flue gas duct is to be suitably insulated and cladded with GI sheet.

No claim will be accepted over and above the quoted price, for any change in the length/size of ducting during execution to meet the statutory requirement. Further, the quoted installation price for the job under this clause would be for total job.

Boiler house piping (loose supply)

- Safety valve piping
- Boiler vent piping
- Boiler blow down piping up to blow down pit
- HP Gas piping, Steam piping from boiler to Existing Steam Header
- Piping with valves and fittings from Feed water tank to Boiler feed water Pump inlet
- Piping with valves and fittings from Feed Water Pump to Boiler.
- Insulation and cladding for above piping.

Automatic blow down control system

Automatic blow down system to monitor and control the TDS level of boiler water as close as possible to the optimum TDS level will be supplied and installed. The system must ensure effective operation of blow down valve so as not to waste additional heat by means of excessive blow down.

The system shall include a probe of SS 316 material (to sense the conductivity of boiler water), a controller with latest features to compare the operating TDS of boiler water with the desired one and in turn, control the TDS level by appropriate operation of blow down control valve. 5 digit LED continuous display with push button interface to facilitate calibration, microprocessor based electronics to ensure probe-conditioning (to take care of de-scaling) and automatic temperature compensation, isolating valves, control valve, non-return valve, blow down control valve, up and down stream steam piping (IBR approved), TDS sensor (0-232 deg. C) with pneumatic control valve and all other associated accessories.

The complete system assembly shall be fitted in the bypass line of manual blow down valve. Necessary handles for operating the valves, pipes and fittings up to blow down pit (outside the boiler house) are to be provided.

Vortex type flow meter:

1 No. Vortex type water mass flow meter (1 for boiler **confirming to IBR**), suitable for operation up to 120 °C and pressure higher than the hydraulic test pressure shall be supplied and connected with flanged type isolating valves and accessories in the feed water piping for measurement of water consumption in the new boiler. The mounting location/arrangement as per the recommendation of Original Equipment Manufacturer (OEM) is to be verified by the bidder and clearly indicated in the drawing submitted for approval. The flow meter shall have remote monitoring/display unit which shall be installed on the control panel of the boiler. The make of the display unit shall be same as that of the flowmeter. The supplier shall make the flowmeter data available at control panel in a compatible form (along with converter, if required) And also transfer flow meter data to Batch control room PC in Plant i.e flow meter data should be displayed at batch control room PC.

A PID valve shall also be provided in the feed water line to regulate the flow of the water to the boiler based on the signal received from the Level transmitter. The PID valve shall be complete with I to P converter.

HP & LP Steam piping

Steam piping from outlet of boilers up to the outlet of a common steam header to be provided by the bidder. The outlet piping shall have a check valve, steam stop valve, moisture separator with traps and isolation valves at the inlet of the common headers from both the boilers. The IBR approved steam distribution header shall have an outlet of suitable size with valve and counter flange. All the valves in the high pressure steam line shall be piston / bellows seal type only. A steam trap assembly shall also be provided in the header to evacuate the steam condensate. The discharge of the steam traps shall be brought up to the blowdown pit through a suitable size MS pipe.

Fuel Oil system

FO transfer pumps and day oil tank, oil ring main system:

Furnace oil received in tanker which shall be unloaded in the existing 2x20000 kg capacity MS tank. From this tank the oil pumped by pumps to the 990 ltr service tank

Heat tracing with insulation shall be provided for the inlet of the 990 L service tank.

Service tank of 990 L capacity in MS construction, insulated and clad in MS sheet duly painted shall be supplied and installed in the boiler house on MS structural platform (to be provided by bidder). The tank shall have inlet, air vent, manhole, two outlets, steam and electrical heater-based FO heating system, temperature gauge, and thermo well for RTD. The complete structure shall be painted with two coats of approved shade.

A control/power supply to temperature controllers /indicators for the steam and electrical based FO heating system for 990 L day oil tank shall be supplied and installed in the boiler control panel.

From the outlet of the 990 L service tank the FO piping shall be taken up to the ring main skid. The ring main skid shall be common for both the boilers and shall include 02 x 1.5 KLPH pumps (1W+1S) with required isolation valves, check valves, Bucket type duplex filter with changeover valves, by pass valve, pressure regulating valves, drain tray etc. complete with inter connecting piping. The complete piping shall be heat traced and insulated. The pumps will be complete with built-in pressure reducing valve and high energy-efficient (EFF-1) TEFC electric motor having minimum protection IP-55.

Oil Pre-heaters, Oil Pumps and piping

The oil pre heater shall have 02 oil pumps (1W+1S) either required change over valves. The pumps will be complete with built-in pressure reducing valve and high energy-efficient (EFF-1) TEFC electric motor having minimum protection IP-55. The pump discharge pressure shall be suited as per the burner requirement. The OPH shall also have a bucket type duplex filter at the inlet side with changeover valves. The return fuel oil from burner shall be connected to the inlet line of the OPH through a closed small tank with overflow line etc. RTD, temperature controller and pneumatically operated solenoid valve shall be used for accurate controlling of the FO temperature. A ball float trap shall also be provided for steam condensate discharge.

A thermostatic controller shall be used for controlling of the oil when heated through electric power. However, the design of the system should ensure maintaining the fuel oil at stable temperature irrespective of fluctuations in the incoming oil temperature; so as to ensure stable atomizing viscosity. Temperature and pressure gauges shall be provided on pre-heater to indicate the oil temperature and pressure.

Complete line for pumping of oil from outlet of service tank in boiler house to burner and return line is to be supplied and installed along with necessary interconnection. MOC of FO pipes shall be MS C class ERW. The FO lines will be suitably insulated and cladded with 22-gauge thick aluminum sheet.

Air/gas separator is to be provided in the fuel supply line to the burner.

01 Nos. Mass flow meters for measuring actual consumption of oil for the boiler and transferring the consumption data for MIS are to be supplied and installed. The flow meter shall have remote monitoring/display unit which shall be installed on the control panel of the boiler. The make of the display unit shall be same as that of the flowmeter. The supplier shall make the flowmeter data available at control panel in a compatible form (along with converter, if required) for other agency to pick up and transfer to Utility PC.

Structural Steel Pipe, bridge, platform, Trench covers, staircase / ladder, railing etc.

MECHANICAL INSTALLATION

The installation work would comprise:

- a. General installation i.e. positioning and installing all the processing, miscellaneous and service equipment as per approved layout drawings and as per the contract.
- b. Supply and installation of structural platforms and tables.

- c. Supply and installation of all service and product piping including ancillary items.
- d. Insulation and cladding of piping and equipment including supply of materials.
- e. Interconnections of services and electrical with equipment.
- f. Guide line for expansion work.
- g. Clean up of work site.
- h. Supply of all cleaning chemicals (except CIP chemicals) and lubricants.
- i. Testing, commissioning and start-up.
- j. Painting including supply of paints as approved by the Owner.
- k. Training of personnel.

Detailed specifications are given in the subsequent clauses.

GENERAL INSTALLATION

Positioning of Equipment

The work involves preparation of access for moving of the plant and equipment including their fittings from the work site godown or from the place within the site where they have been unloaded, to the place of erection, decorating and placing on the –foundation wherever required. All the civil foundations as per the manufacturer/supplier's drawings shall be arranged by the Owner. The Supplier shall place the equipment and carry out final adjustment of the foundations including alignment and dressing of foundation surface, embedding and grouting of anchor bolts and bedplates. The Supplier shall be responsible for obtaining correct reference lines for purpose of fixing the alignment of various equipment from master benchmarks provided by the Owner.

Tolerances shall be as specified in equipment manufacturers drawings or as stipulated by the Owner's Engineer. No equipment shall be permanently bolted down to foundations or structure until the alignment has been checked by the Supplier and witnessed by the Purchaser. The Supplier shall carry out minor alterations in the anchor bolts, pockets etc., at no extra cost and set the equipment properly as per approved layout, drawings and manufacturer's instructions. The Supplier shall supply all the necessary foundation/ anchor bolts and bedplates if required without extra cost.

The Supplier shall supply, fix and maintain, at his own cost, during the erection work, all the necessary centering, scaffolding, staging required not only for proper execution and protection of the said work but also for protection of the surrounding plant and equipment. The Supplier shall take out and remove any or all such centering, scaffolding, staging planking etc., as occasion shall require or when ordered to do so and shall fully reinstate and make good all things disturbed during execution of the work, to the satisfaction of the Owner. The Supplier shall be paid no additional amount for the above.

SERVICE PIPING INSTALLATION

General Guidelines

All piping systems shall comply with the latest editions of the following regulations wherever applicable.

All applicable Indian Standards.

All applicable State Government/ Central Government laws / acts.

The Supplier has to prepare all erection drawings of the proposed plant including equipment positions and service-piping positions (isometric), spacing between pipes, all other relevant details and submit these drawings to BANAS DAIRY for approval.

Scope of Supply

The Supplier shall supply all piping materials like pipes, fittings, flanges measuring instruments and all other items as shown in the schedule of quantities. All the pipes & fittings and insulation material etc. should be of class and make as approved by the Owner. Prior approval of the Owner must be obtained by the Supplier for the class and make of all materials The Supplier should furnish the details of makes selected by him in the Performa.

Electrical Items:

Control panel

The control panel shall be supplied and installed in the boiler house at a suited location. Control panel shall be single front and non-compartmentalized type with With PLC / HMI, Indicating Lamp, Contactor, Relay Card, MCB, Connector, SMPS, Cable Gland, Overload Relay / MPCB, Push Button, Main Switch, Emergency Stop, Single Phase Preventor, Cooling Fan, Panel Lighting, Alarm, temperature/pressure controller, digital temperature indicators, hooters etc.

Necessary control wiring to the control panel has to be done by the boiler supplier.

All displays shall be brought to the respective control panel and digitally indicated. The panel shall be made from 14 Gauge CRCA sheet duly pre-treated and painted. It shall also have audio alarming system for all the fault condition, which shall appear, visually on annunciator window.

Few of the fault conditions are:

Input	Alarm/Controls / Interlocks
Flame failure	Audio, visual alarm and burner trip
Low oil pressure	Audio, visual alarm and burner trip
High/Low gas pressure	Audio, visual alarm and burner trip
Higher Steam pressure	Audio, visual alarm
Steam Temperature in excess of set temperature	Boiler shall stop with an audio-visual alarm/signal.
Electrical heater on	Indication.
High, low and extra low water level	Audio-visual alarm. The low and extra levels shall switch off the burner apart from giving an audio-visual alarm. High water level shall trip the feed water pump with an audio-visual indication.
Fuel inlet conditions like temperature, pressure	The boiler cannot be started till set value is reached.
TDS sensor	Automatic blow down
There shall be control for start-up and shut down purge sequences.	
The control is to be provided for burner-ignition and modulating.	
Steam pressure switches are to be provided so as to control the combustion and maintain steady steam pressure.	
The hooter shall stop once it is acknowledged, but the annunciator shall keep light 'ON' till the time fault conditions are attended.	

The panel shall be completely pre wired.

Indicators, rotary switches etc. shall be provided on top of the panel and the same shall be at a convenient operating height.

Necessary isolators near motors shall be provided as per statutory requirement.

The panel shall be installed in boiler house at an approved location.

Electricals viz. power, control, signal & instrumentation cables, conduits & cable trays, earthing etc.

Required quantity of armored aluminum & copper cable, copper control cable, signal & instrument cable, GI perforated cable trays, GI conduits pipe, plate type earth pit, earthing network, earthing conductors, load break Isolators / plug & sockets with Emergency stop Push Button near motors for emergency isolation, rubber mats for panels etc. shall also be provided.

All the power & control cables shall be laid through GI perforated trays and GI conduits. GI shrouds for all pumps & motors shall be provided. Supply & placement of rubber mats of proper size as per the Gujarat state Electrical Inspectorate rules shall be provided.

All armored cables in Boiler control panel and plug & socket/isolator junction boxes near motors shall be of copper conductor for all the cables sizes. Connection from plug & socket/isolator junction boxes to motor junction boxes shall be with PVC insulated flexible copper cable in flexible conduit.

Earthing for automation and instrumentation shall be independent of power earthing. Earthing conductor shall run in the cable trays and cable trench and individual motor shall be earthed through flexible copper wires (02 Nos for each motor). 3 earthing with earth plates in GI (600x600x6 mm) and earthing strip of size 40 mm x 5 mm shall be provided. The civil work required related to earthing is in the scope of bidder. A 300x300 mm earthing pit cover in CI shall be provided on each earthing.

**Electrical Connected Load: Bidder to specify if any changes.
During Prebid.**

Motor Use for	Ratings	Power cable
Boiler feed water pump Motor	5 HP (1W+1S)	4CX 2.5 SQ.MM
Fuel Oil Pump Motor (to feed electric heater)	1.5 HP (1W+1S)	4CX 2.5 SQ.MM
Electric heater -	6.6 KW	4CX 2.5 SQ.MM
Oil booster pump Motor (for ring main system, just before Oil flow meter)	1.5 HP	4CX 2.5 SQ.MM
FD Fan Motor	5 HP	4CX 2.5 SQ.MM

- Existed Incomer line cable to Control Panel is **4C X 90 SQMM**.
- For Power supply- there should be **4CX2.5 SQMM armoured copper cable**
- For Control supply- there should be **Flexible copper cable 2CX1.5 sq.mm**
- Required a **440 V input, 230/240 V output, 750 VA rating Control transformer** to provide supply to control wiring (Should work as a stabilizer to make constant voltage)
- **MCCB /MCB**
- **Contractor:** as per load design.

The rating of the power contactors shall be as required depending upon the feeder rating indicated in the specifications and as per the feeder details table provided in this

specification below. Contactors coils shall be suitable for 240 volts, 50 Hz. unless otherwise specified. All contactors shall be supplied with minimum 2 NO + 2 NC auxiliary contacts. Additional contacts if required for interlocking etc. shall also be provided. Minimum contactor rating for power shall be 9 Amp. All the three contactors of Star Delta Starter shall be of same rating. Rating of contactors shall be based on feeder rating. All contactors of motor starters shall be suitable for AC 3 duty unless specified otherwise.

Motor Protection Circuit Breaker (MPCB):

The MPCB will have motor protection tripping characteristics, current limiting and shall have low let through energy. It shall have bi-metallic overload protection and electromagnetic release for short circuit protection. MPCB shall have inbuilt single-phase protection and adjustable overload settings. In the MPCB, it shall be possible to have accessories like auxiliary contacts, trip alarm contacts, shunt release/under voltage release, as required for motor control and protection. MPCB shall give indication for 'ON'/'OFF' and tripping on fault. The breaking capacity of MPCB shall not be less than 50 KA. MPCB shall have rotary operating mechanism with door interlock and provision to lock it in 'OFF' position with a padlock.

➤ **Push Buttons (PBs):** LED Type

Push buttons shall be complete with actuator and contact block and shall be generally mounted on doors of the cubicles. Colors shall be as follow:

Stop/ open/ emergency - Red
Start/ close - Green

It should have minimum 1 NO + 1 NC contacts. Push buttons shall conform to IP - 65 protections against dust and water ingress.

➤ **Indication Lamps:**

All outgoing & incoming feeders shall be provided with 'ON' indication lamps.

Colors shall be as under:

Phases : Red, Yellow & Blue
ON : Red
OFF : Green
Tripped: Yellow

Indicating lamps shall be of LED (cluster of high intensity light emitting diodes) type, suitable for 240 V AC supply. These shall be provided with translucent covers of red, green and amber colours as required. These lamps shall be of minimum 22.5 mm dia. Indication lamps to be provided for all feeders.

Control System-PLC/ Touch Screen HMI:-

A Programmable Logical Controller (PLC) to control the process. The PLC should be mounted on a durable control panel. The visualization system should give the operator a quick overview of the major process values of the installation. Furthermore, it should allow showing the text-based alarm messages. Before shipment, the control system should be completely tested in order to have a trouble-free start-up on site.

The control system shall have the following major functions:

- Continuous monitoring of the major process values (temperatures, oxygen level, pressures.)
- Continuous monitoring of the electrical parameters of each boiler
- An automated process control for an optimal energy plant operation
- A continuous safety control of the equipment (and the personnel!) Continuous alarm feedback
- System for visualization and online efficiency monitoring system and measuring of the following parameters:
 1. Stack loss, Enthalpy loss etc.
 2. Steam Flow Trends.
 3. Water flow trends
 4. Fuel firing rate & trends
 5. Steam to fuel ratios
 6. All trends and graphs for all other important parameters.
 7. Efficiency by Direct Method. (Through RPM counters in Fuel feeders)
 8. Efficiency by Indirect Method.

The control panel shall have the following

A. Power section:

Control Panel non compartmentalized type shall be provided in boiler house.

B. Regulation and safety equipment:

1 Set The regulation, control and operation of the boiler and fuel handling system shall be PLC based.

PLC to monitor total electrical parameters

Incl. all regulation and safety equipment:

Incl. Under pressure regulation, including an under pressure detector

Incl. Modulating capacity regulation

Incl. Water level controller (1-point control)

Incl. Continuous oxygen measurement and display on the control panel

Accessories

All junction boxes / distribution boxes if applicable for control/ instrumentation system shall be in SS-304 / Cast Aluminium construction. Instrumentation/signal cables/wires shall be laid in separate cable tray so as to avoid any interference.

System Software

The system software will be based on open architecture/protocol. It shall be latest object-oriented software, which result in fully scalable system. Original license version of the latest release of software shall be used. The system shall use Fiber optics as backbone.

Software

This shall be based on software of open architecture/protocol. Following minimum reports are envisaged from the system. Necessary forms to be developed on the networked PC's for entering the data. All the reports shall be developed after the discussion with the customer. However, following minimum reports are to be considered for development.

Fuel storage, feeding reports.

Boiler-wise steam generation report

Water consumption report

Boiler-wise efficiency report

CONTROL PHILOSOPHY

The bidder may propose a brief control philosophy along with the bid. However, the control philosophy would be actually finalized during detailed engineering.

TECHNICAL REQUIREMENTS

General

All equipment, system and accessories furnished shall be from latest proven product range of established/reputed manufacturers and shall conform to applicable national and international standards.

The design of various control systems and related equipment shall adhere to the principle of failsafe operation implying that loss of signal, loss of power supply or failure of any component will not lead to hazardous conditions/ product losses, while at the same time, prevent occurrence of false and unrelated trips.

Climatic Condition

The instruments / control system shall be suitable for environmental conditions that are normally encountered in western part of India. All equipment / system / sub-system etc. shall be fully tropicalized accordingly.

Ambient Temp. 50 deg. Relative humidity – 95% at <55 deg. C.

SINGLE ELEMENT MOBREY LEVEL CONTROL SYSTEM

The feed water level should be controlled through a proportional signal or process variable (PV) coming from the drum level transmitter. This signal is compared to a set point and the difference is a deviation value. This signal is acted upon by the controller which generates corrective action in the form of a proportional output. The output is then passed to the boiler feed water valve, which then adjusts the level of feed water flow into the boiler drum. The Single Element Drum Level Control System shall consist of the following:

- Differential Pressure Transmitter
- Isolation valve –
- Control Valve
- Controller
- Piston Valves
- Piping & Hardware

SPARES:

The final list of spares shall be decided based on the offer and discussion. Following in brief are suggestive components:

Boiler tubes	<i>Minimum 2% of the total tubes.</i>
Oil pump for OPH unit	1 No
Manhole gasket	2 No.
Mud hole gasket	2 No.
Tube cleaning brush	4 Nos.
SS Float, rod & Magnet assembly	1 No.
Pressure switch	1 No.
Fusible plug	4 No.
Toughened glass	2 Nos.
Sequence controller	1 No.
Ignition electrode	2 Nos.
Electrode cable with cap	1 No.
Heater element	2 Nos.
Photo cell	1 No.
Ignition transformer	1 No.
Stepping motor	1 No.
Solenoid valves	3 No.

A spare not listed above but found necessary for normal functioning of the new boiler within two years of operation will have to be supplied by the supplier.

Any spares required during startup and upto successful commissioning of the boiler and all associated equipment (commissioning spares) are separate from the spares mentioned above and will be arranged by the supplier without any additional cost. If a regular spare item gets consumed during commissioning, supplier shall replenish the same before handing over of the steam raising plant to purchaser without any extra cost.

AIR POLLUTION CONTROL EQUIPMENTS

Pollution control equipment shall be installed to meet the local pollution Control norms which are as under;

Parameters	Unit	Levels
SPM level	mg/Nm ³	< 50
SOx	mg/Nm ³	Lowest possible
NOx	Ppm	Lowest possible

TECHNICAL DETAILS AND DRAWINGS TO BE FURNISHED ALONGWITH THE BID EQUIPMENT

- List of equipment of the steam generation plant with adequate brief specification of each item including construction material, critical thicknesses, length/height/capacity, drive details, make/model etc.
- **A comprehensive list of essential spares for the entire supply.**

Technical Data & details (to be furnished by the Bidder) in the following proforma

S. No.	Description	Details
1.	Boiler Details	
	Design Code of Boiler	
	Type of Combustion system	
	Type of boiler (design)	
	Type of Fuel Feeding system	
	Types of fuel which can be used	

	Type of supports /installation	
	Model	
	No. of passes of flue gas	
2.	Steam Generation (net at FWT 30 Deg C)	Kg/hr
3.	Steam quality	
	Max. total Solids	ppm
	Silica	ppm
	Dryness fraction in %	
4.	Steam Pressure	Kg/ sq.cm (g)
	Safety valve set pressure	Kg/ sq.cm (g)
	No. on Steam drum (MOC / Size / Qty)	
	Modulating pressure control range	___ to ___ Kg/ sq.cm (g)
	High steam pressure alarm pressure switch setting	Kg/ sq.cm (g)
5.	Boiler Thermal Efficiency:	FO NG
	Boiler efficiency (%) based on G.C.V of fuel at 100% load	
	Boiler efficiency (%) based on G.C.V of fuel at 66 % load	
	Boiler efficiency (%) based on G.C.V of fuel at 33 % load	
6.	Boiler Water Concentration Limits: (Bidder to provide the specification of water)	
	Hardness as CaCO ₃	ppm
	Total dissolved solids	ppm

	Suspended solids	ppm		
	Alkalinity as CaCO ₃	ppm		
	pH value			
	Free Co2	ppm		
	Dissolved oxygen	ppm		
	Silica	ppm		
	Phosphates as Po4	ppm		
	Sodium Sulphite as So3	ppm		
7.	Connected Electrical Load	No.	HP	Total
	Feed water pump			
	Burner			
	Panel			
	Misc.			
8.	Utilities Consumption at Maximum Rated Capacity			
	Fuel FO on GCV	Kg/hr		
	Fuel NG on NCV	Kg/hr		
	Electricity	KWH		
	Water	Kg/hr		
	Compressed air	CFM		
9.	Boiler Dimension	(Length x Breadth x Height)		
	Overall dimension of boiler			
	Recommended size of boiler house suitable for 1 no. boiler			

10.	Mechanical Details of Boiler	
	Total Heating surface area (sq.m)	
	<u>Tubes</u>	
	OD x Thickness (mm)	
	Quantity (nos)	
	Material of construction	
11.	Feed Water Pumps	
	No. of water pumps	
	Standby water pumps	
	Type of pump	
	NPSH required	
	Capacity of each pump	cu.m/hr at MWC head.
	Feed water temperature indicator	
	Standby Feed water pumps	
12.	Valves in water feed piping	
	Stop valve at pump outlet : Yes / No	
	Non-return valve at pump outlet : Yes / No	
	Pressure gauge at pump outlet : Yes / No	
	Pump suction side isolating valve: Yes / No	
13.	Flue Gas	
	Flue gas opening size on boiler (mm)	
	Ducting size	
14.7	Automatic Water Level Controls	

	Mobrey Level Controller : Yes / No ; Qty :	
	Alarm and signal provided for	
	Extra low level : Yes/ No	
15.	Boiler Mountings and Fittings:	<u>Qty</u> <u>Size</u> <u>Make</u>
	Steam stop valve	
	Non-return valve	
	Safety valve	
	Feed check valve	
	Blow down valve for shell	
	Air vent valve	
	Water level gauge	
	Steam pressure gauge	
	Vortex type Steam flowmeter	
	FO meter	
	NG flow meter	
	Water flow meter	
16.	Structural work :	
	Provision of platform for boiler : Yes / No	
	Provision of ladder/staircase for boiler : Yes / No	
	MS Structural support for DOT	
17.	Boiler Losses :	
	(Break up details of losses in % to be furnished on GCV basis)	FO NG

	Dry stack loss	
	Sensible heat loss	
	Moisture in air loss	
	Radiation loss	
	Unaccounted loss	
	TOTAL LOSS	
18.	Critical performance parameters at Full load:	
	Area of heat transfer (sq.m)	
	Flue gas temperature / stack temp (Deg C)	
	Excess Air %	
	Steam to Fuel Ratio	
	Water volume (Liters)	
	Steam space (Liters)	
	Volumetric Heat release (Kcal/ cum)	
	Steam generation rate (Kg/s /sq.m)	
	Electricity consumption at rated capacity	

Note :

The boiler plant room drawing along with the tentative layout is enclosed. Bidders are to submit the same along with their offer superimposing their boiler dimensions and the clearances required as per the statutory regulation.

TECHNICAL DETAILS AND DRAWINGS TO BE TO BE SUBMITTED AFTER AWARD OF CONTRACT

The following shall be provided after award of contract:

1. The final equipment GA drawing of boilers and common chimney being manufactured after approval by purchaser
2. P&ID
3. Instrumentation & Controls Drawing
4. Final services /utilities schematic with sizes of pipe lines, valves, insulation thickness, controls, showing all instruments and accessories
5. Final foundation foot print
6. Final electrical load details in HP/KW
7. Final control schematic of the control panels, automation including the proposed architecture showing control panels, PLC, Control station etc.

SAFETY EQUIPMENTS AND ACCESSORIES:

All types of safety equipment, fire extinguishers, indications, posters etc. shall be in the scope of Purchase. Safety related Liaisoning work shall be in the scope of Bidder.

PERFORMANCE GUARANTEE: -

Guarantee for workmanship & performance for a Period of 12 months from Date of Performance trial or 18 months from the date of supply.

In guarantee period Repair and Replacement work will be done at no extra cost.

4. List of preferred Makes of Bought out Items (Not in order of preference)

1 TPH Boiler & its Accessories	
DESCRIPTION	MAKES
DUAL BURNER	<i>Weishaupt / OILON /Forbes-Marshall</i>
BOILER FEED WATER PUMP (vertical type)	GRUNDFOS / KSB / WILO
BLOW DOWN VALVE	Forbes Marshall / LEVCON/ SHARP/ LEADER / SPIRAX / BHEL
WATER LEVEL INDICATOR WITH DRAIN COCK	TELEFLO/SHARP/LEADER/HAWA/ FORBES /MH BROS / WAREE INSTRUMENTS/ TECHTROL/ LEVCON
AUTOMATIC WATER LEVEL CONTROLLER	ABB/ YOKOGAWA/HONEYWELL /E&H / EMERSON/SIEMENS
INSTRUMENTATION, CONTROLS & AUTOMATION	
DESCRIPTION	MAKES
PLC/HMI	ABB/SIEMENS/DANFOSS/ALLEN BRADLEY/Forbes Marshal
LEVEL TRANSMITTER & INDICATOR	E&H / EMERSON / SIEMENS
TEMPERATURE / PRESSURE TRANSMITTER	E&H / EMERSON / SIEMENS/BURKET/BAUMER/IFM
RTD	E&H / EMERSON / SIEMENS /BAUMER/ANDERSON NEGELE/ WIKA/RADIX
PID CONTROLLER	EMERSON / YOKOGAWA / FOXBORO /BURKET/ HONEYWELL /FORBES MARSHAL
PHOTOCELL WITH REFLECTOR	LEUNZE / IFM/P&F
LEVEL SWITCH (FLOAT TYPE & VIBRATING FORK TYPE)	E&H / EMERSON / SIEMENS/BHURKET/BAUMER/ANDERSON NEGELE
Steam/Water/Gas flow meter Vortex Type	Forbes Marshall /E&H / EMERSON / SIEMENS/HONEYWELL/BURKET/KROHNE MARSHALL
OIL FLOW METER	E&H / EMERSON / SIEMENS / YOKAGAWA/ANTON-PARR
PRESSURE SWITCH / TEMP. SWITCH	DANFOSS/ HANSEN / PARKER/BURKET/BAUMER / ANDERSON NEGELE/P&F/SWITZER/ INDFOSS/

PRESSURE & TEMPERATURE GAUGE	WIKA/ WAREE/BAUMER/JUMO / FORBES MARSHALL
ELECTRICALS	
DESCRIPTION	MAKES
ELECTRIC MOTORS	SIEMENS / ABB/Crompton
CONTACTORS	L&T / SIEMENS / SCHNEIDER
MPCB	L&T /SIEMENS / ROCKWELL / SCHNEIDER
MCBS	L&T / SIEMENS / SCHNEIDER
PUSH BUTTONS	TEKNIC / L&T / SIEMENS
INDICATING LAMPS (LED)	TEKNIC / L&T / SIEMENS
LT POWER CABLES (COPPER) FROM Control Panel TO VARIOUS CONSUMPTION POINTS.	LAPP /CONCAB/SBEE
LT COPPER CONTROL CABLES	LAPP /CONCAB/SBEE
SIGNAL & INSTRUMENT CABLE	LAPP /CONCAB/SBEE
CABLE TRAY	INDIANA / MEK / PILCO / ELCON / METALICA PRESSINGS / POWER CONTROLS / SILVER LINE
CABLE GLANDS	COMMET / EX-PROTECTA / DOWELS / BRACKO
CABLE LUGS	DOWELS / COMMET
SERVO VOLTAGE STABILIZER	APLAB / NEEL / CRYCARD / DB ELECTRONICS / PRIMA / NUMERIC
UPS	APC / EMERSON / NUMERIC / REILLO / SIEMENS / HI-REL / APLAB
VALVES & PIPES	
DESCRIPTION	MAKES
WATER VALVES (BUTTERFLY / BALL)	AUDCO / SAUNDERS / INTERVALVE / BDK / L&T
WATER VALVES (DIAPHRAGM)	SAUNDERS / BDK / L&T
NON-RETURN VALVE FOR WATER	AUDCO / INTERVALVE / BDK / L&T
MS PIPES FOR STEAM.	TATA / JINDAL / KALYANI / MSL
NRV FOR OIL LINE	INTERVALVE / AUDCO / LEADER / L&T
Safety valve	Forbes Marshall
Gate / Globe valve	Forbes Marshall/AUDCO/BDK
Piston valve	Forbes Marshall

<u>Gas Train details for PNG supply to burner</u>	
Gas Filter 40 NB	Honeywell/Eqv.
Gas slam shutoff valve MB40/6B	Giuliani/Eqv.
Gas regulator valve, ST4B40	Giuliani/Eqv.
Relief Valve MS20	Giuliani/Eqv.
Gas Pilot Solenoid Valve EG12SR, (1/2)	Honeywell/Eqv.
Gas Main Solenoid Valve, FAST VE4040A	Honeywell/Eqv.
Gas Main Solenoid Valve, SLOW VE4040C	Honeywell/Eqv.
Gas Pressure Switch, QPL25.050	Siemens/Eqv.
Gas Pressure Switch, QPL25.150	Siemens/Eqv.
Inlet Pressure Gauge with push button 0-5 Kg/cm2	Wika/Eqv.
Gas Pressure Regulator	Kromschroder/Eqv.
Outlet Pressure Gauge with push button 0-250 mbar	Kromschroder /Eqv.
Pilot Gas Train consist of Ball valve, PRV, Solenoid	-
Interconnecting pipe line with seamless pipe & pipe fittings	-
Vortex type Gas flow meter	Forbes Marshall/ E&H/Emerson

Note: While execution, choice of make would be made from the preferred list. Makes and model shall be approved by the purchaser expeditiously. Make of items apart from above list also shall be approved by the purchaser

5. BATTERY LIMITS

S. No.	Description	Purchaser's scope	Supplier's scope
1	Makeup Water	Source to Feed Water tank	Bidder scope to tap off from Feed water to the boiler with pumping, Isolation, Flowmeter, Pressure transmitter.
2	Flue Gas	–	From the Boiler outlets across Pollution control equipment, up to the outlet of existed common chimney.
3	HP Steam		From the outlet of boiler to the HP steam existing header with outlet valve, steam flow meter & Pressure transmitter.
4	Blow-down	Blow down pit is in the scope of Purchaser	Auto-blow-down system up to blow-down pit located outside the boiler house.
6	Fuel	Fuel Oil piping from Bulk Storage to Day tank. Gas line available to boiler house -2" at Pressure 1.5 bar	FO Oil tank with level control & level gauge with inlet out let connection & pumping system in connection to boiler. Bidder to provide Gas train (from inlet to outlet) to supply NG for burner including vortex type gas flow meter.
7	Electricals	Power shall be provided at the incomer of the Boiler Control Panel in the boiler house	Boiler Control Panel & to all individual loads for the Boiler and accessories. Cabling for auto blow-down system and all instruments, flowmeter, PRVs, probes, sensors etc. are covered in the work scope. The junction box and the electrical connection from the box up to the aviation light fittings. The scope includes supply and installation of Control Panel, controller, cables etc. and submission of documents approval for electrical installation executed by the bidder.

8	Earthing	Civil Scope is under purchaser	Earthing is in scope of bidder & same to be connect to existing grid.
9	Civil work	Civil is in scope of purchaser	Necessary steel supports / cable trays etc. for piping / ducting and cabling etc. are in bidder's scope. Supports for piping, ducting, platform for HP steam piping up to existing header. all GI hand railing in the RCC Floor for boilers , and MS structure.
10	Compressed Air piping	Compressed air shall be made available in the boiler house.	Compressed Air shall be drawn from the available tap off point with required valve & filter.
12	Raw materials & Consumable	All raw materials for Boiler, operating staff for commercial production shall be provided by purchaser/ project authority.	All consumables like Gear oils, lubricants, packing for flanged joints etc. and commissioning spares required if any, for installation, testing & commissioning till taking over the plant by the purchaser shall be provided by bidder and the same after taking over the plant shall be provided by purchaser / project authority
13	Statutory requirement		Approval for Boiler & related accessories from Boiler inspectorate. Submission to purchaser all technical information, documentation, drawings for Pollution control approval & electrical approval. This being FO/PNG dual fired boiler for the approval from GPCB may be included in the scope of the bidder

EXCLUSIONS

Civil Works Control Panel room shall be provided by the Purchaser. All civil foundations for steam boiler shall be provided by purchaser based on the GA drawing and load/foundation details provided by supplier and as battery limit.

FUEL AND OTHER RESOURCES: Fuel for boiler firing, IBR certified boiler operating staff for commercial production shall be provided by purchaser.

Other exclusions:

- a) HP steam header to the consumer points.
- b) Power up to Control Panel incomer & water up to the boiler house
- c) Fuel up to fuel godown & other chemicals
- d) Internal electrification, network connection, telephone for Boiler House.

6. SCHEDULE OF QUANTITIES (SOQ):

SCHEDULE OF QUANTITY (SOQ) AND PRICE FORMAT. SUPPLIER HAS TO SUBMIT THIS FORMT ALONG WITH THE OFFER

Price Schedule:					
Sr. No.	<u>Item Description</u>	Qty.	Supply (Rs.)	Installation & Commissioning (Rs.)	Total (Rs. in lacs)
1.	1 TPH Dual-fired (FO/NG) 3 passes fully wet-back shell Boiler , horizontal package type, fire tube Boiler complete with insulation, internals, nozzles, manholes, MS platform, built-in safeties, openable doors, brushes, essential tools etc.	01 Set			
2.	Mono-block Burner complete with servo-motors, arrangement for step / step-less modulation, ignition transformer, FO/NG FD Fan, Oil pre-heater, oil	01 Set			

	filters, safeties etc. complete with control panel for burner management.				
3	All standard Boiler mountings & other fitments complete	01 Set			
4	Gas Train for PNG supply to burner & Vortex type Gas flow meter	01 Lot			
6	Automatic & Main blow-down valves, Conductivity sensor & Control system.	01 Set			
7	Steam flowmeter “Vortex type” with remote digital indicator, IBR Approved	01 No			
8	HP & LP steam pipes (Steam piping from boiler to Existing steam Header), steam valves, strainer, expansion loop and fittings including drain trap assembly etc.	01 Lot			
10	Fuel Oil System :Furnace oil pumps, pipes, valves & fittings, oil pressure Boosting system, etc.	01 Lot			
11	Furnace oil Flow Meter	01 No.			
12	Feed water Pump, Centrifugal multistage Vertical type , Water pipes, valves & fittings etc.	2 No. (1W+1S)			

13	Water flow meter Vortex type	01 No.			
14	Insulated FO service Tank complete with nozzles, internals etc.	01 No.			
15	Oil cleaning system complete with centrifuge, pump, piping etc.	01 Set			
16	Structural Steel Pipe bridge, platform, Trench covers, staircase /ladder, railing etc.	01 Lot			
17	Boiler Control panels including PLC/HMI, power & control cabling, GI cable tray, Rubber mats, UPS, level sensors, temperature sensors, instrumentation, controllers, earthing network, GI flats, earth pits with electrodes etc.	01 Lot			
18	Spares for 2 years operation	01 Set			
19	Statutory approvals from IBR, submission of technical information, documentation etc.				
Total Rs.					

7.0 PERFORMANCE TEST & GUARANTEES

Performance test:

The bidder is required to detail the documentation proposed for performance test of all major equipment of boiler. This shall detail the guaranteed vs. actual throughput or output or performance (as relevant) and the tolerance of accuracy. Also the test methods proposed to demonstrates that these guarantees have been met:

Formats of Guarantees:

- a) Shall be in line with OEMs recommendations.

Formats for performance tests:

- a) Procedure for carrying out the tests
- b) Method of measurement
- c) Test durations
- d) Evaluation methodology

PERFORMANCE PARAMETERS AND TEST PROCEDURE:

After completion of commissioning the guaranteed performance of all the equipment's shall be established by the supplier.

PROCESS PERFORMANCE AND CONSUMPTION GUARANTEES

If the plant or any part thereof does not give the agreed process performance and consumption guarantees during the warranty period due to reason attributed to the supplier, the supplier shall subject to 2 below, the action shall be as below:

Equipment performance: The satisfactory performance for the equipment/processing plant will be considered achieved if the plant operates above 98% of the rated capacity declared by the supplier in the offer.

If performance is between 95% and 98% of the rated capacity, penalty per 1% shortfall will be calculated at 1% of equipment Rs. Value in the contract.

If performance is below 95%, the contractor will be required to upgrade the plant or replace the plant to comply with the above performance criteria. Otherwise the plant will be deemed unacceptable.

8.0 MAJOR RESPONSIBILITIES OF CONTRACTOR & PURCHASER

1.0 Responsibilities of bidder

It is not the intent of these technical specifications to specify completely all details of design & fabrication of any plant/equipment, nevertheless, the equipment shall conform in all respects to high standards of engineering design & workmanship and be capable of performing in continuous commercial operation up to agreed performance standards in a manner acceptable to the purchaser.

The purchaser will interpret the meaning of various equipment specification and drawings and shall have the power to reject any material/ equipment which in their opinion is not in full accordance to tender specifications.

The contractor shall be responsible to undertake all work involved in implementing the project within their battery limits. This shall include but not limited to design, manufacture, supply, installation and commissioning of the entire project component including process equipment, process pipe-work, utilities equipment, services pipe-work, electrical equipment, power cabling, instruments and controls, instrumentation & control cabling, pneumatics, and automation. Also all necessary supports, support structures, cable ducts, trenching, conduits etc. required to complete the installation and to meet the purchaser high standards are included. No exclusions of any nature are acceptable, other than those detailed in this Tender document to be in the supply of purchaser, or in the scope of one of the other Tender Packages.

In particular, the Supplier shall be responsible for:

- Developing the process design, complete engineering design, manufacture and/or supply of all goods and services and ensuring best performance of individual equipment/system/ process plant as a whole. The supplier shall avail the assistance of reputed specialists in their respective fields, wherever required.

- Development of Automation schemes, software, interfaces etc. and their incorporation in the project to the entire satisfaction of the Purchaser.
- Providing purchaser with technical data, technical literature, production and service load calculations.
- Arranging for approvals from various statutory authorities on behalf of the purchaser. The statutory fees shall be reimbursed by the purchaser on production of receipts.
- Providing first charge of oil, lubricants and consumables. First charge means that these items shall be replenished until the successful completion of product trials.
- Execution of the project in accordance with the prevailing Indian Standards, Indian Electricity Rules, Indian Explosives Act, Indian Factories Act, Indian Pollution Act and any other Act which may be relevant to the project and obtaining approvals thereof. Wherever Indian Standards are not available the bidder shall follow International Standards.
- Adequate protection of equipment stored in open within the project site premises.
- Ensuring satisfactory performance and After-Sales service of all items included in the scope.
- Test equipment, test kits, instrumentation & materials required for establishing performance parameters.
- Fire detection and alarm system for control rooms and supply of fire extinguishers at control room.
- Necessary man-power, construction equipment and tools required to undertake all work involved in tender package.
- Insurance coverage against mishaps including due to fire, lightning etc.
- Arrangement of proper and adequate lighting at work places. It shall be responsibility of the bidder to arrange power required for construction/erection at site. In case power is available and provided by purchaser amount @ 0.5% of the contract value or at actuals shall be recovered from the bidder.

- Arranging and deploying required security personnel for preventions of theft/damage to the equipment supplied shall be responsibility of the bidder to keep ward and watch for all the equipment's from supply till plant is handed over to purchaser.
- Ancillary services like **spares inventory for testing & trial runs**, maintenance schedules, special tools/tackles etc.
- Testing, commissioning and operation of the plant during production trials to the satisfaction of the purchaser.
- Performance guarantees with regard to the following:
 - a. Rated performance of section(s) and complete system(s).
 - b. Product quality standards conforming to the prevailing International Standards.
 - c. Consumption of utilities for section-wise individual equipment and for the complete system.
 - d. Establishment of product losses
- Training of purchaser personnel in use and management of the automation systems, plant operation and control, maintenance and repair of systems and equipment

It is not the intent of these technical specifications to specify completely all details of design & fabrication of any plant/equipment, nevertheless, the equipment shall conform in all respects to high standards of engineering design & workmanship and be capable of performing in continuous commercial operation up to agreed performance standards in a manner acceptable to the purchaser.

The purchaser will interpret the meaning of various equipment specification and drawings and shall have the power to reject any material/ equipment which in their opinion is not in full accordance to tender specifications.

The contractor shall be responsible to undertake all work involved in implementing the project within their battery limits. This shall include but not limited to design, manufacture, supply, installation and commissioning of the entire project component including process equipment, process pipe-work, utilities equipment, services pipe-work, electrical equipment, power cabling, instruments and controls, instrumentation & control cabling, pneumatics, and automation. Also all necessary supports, support structures, cable ducts, trenching, conduits etc. required to complete the installation

and to meet the purchaser high standards are included. No exclusions of any nature are acceptable, other than those detailed in this Tender document to be in the supply of purchaser, or in the scope of one of the other Tender Packages.

In particular, the Supplier shall be responsible for:

- Developing the process design, complete engineering design, manufacture and/or supply of all goods and services and ensuring best performance of individual equipment/system/ process plant as a whole. The supplier shall avail the assistance of reputed specialists in their respective fields, wherever required.
- Development of Automation schemes, software, interfaces etc. and their incorporation in the project to the entire satisfaction of the Purchaser.
- Providing purchaser with technical data, technical literature, production and service load calculations.
- Arranging for approvals from various statutory authorities on behalf of the purchaser. The statutory fees shall be reimbursed by the purchaser on production of receipts.
- Providing first charge of oil, lubricants and consumables. First charge means that these items shall be replenished until the successful completion of product trials.
- Execution of the project in accordance with the prevailing Indian Standards, Indian Electricity Rules, Indian Explosives Act, Indian Factories Act, Indian Pollution Act and any other Act which may be relevant to the project and obtaining approvals thereof. Wherever Indian Standards are not available the bidder shall follow International Standards.
- Adequate protection of equipment stored in open within the project site premises.
- Ensuring satisfactory performance and After-Sales service of all items included in the scope.
- Test equipment, test kits, instrumentation & materials required for establishing performance parameters.
- Fire detection and alarm system for control rooms and supply of fire extinguishers at control room.

- Necessary man-power, construction equipment and tools required to undertake all work involved in tender package.
- Insurance coverage against mishaps including due to fire, lightning etc.
- Arrangement of proper and adequate lighting at work places. It shall be responsibility of the bidder to arrange power required for construction/erection at site. In case power is available and provided by purchaser amount @ 0.5% of the contract value or at actuals shall be recovered from the bidder.
- Arranging and deploying required security personnel for preventions of theft/damage to the equipment supplied shall be responsibility of the bidder to keep ward and watch for all the equipments from supply till plant is handed over to purchaser.
- Ancillary services like **spares inventory for testing & trial runs**, maintenance schedules, special tools/tackles etc.
- Testing, commissioning and operation of the plant during production trials to the satisfaction of the purchaser.
- Performance guarantees with regard to the following :
 - e. Rated performance of section(s) and complete system(s).
 - f. Product quality standards conforming to the prevailing International Standards.
 - g. Consumption of utilities for section-wise individual equipment and for the complete system.
 - h. Establishment of product losses
- Training of purchaser personnel in use and management of the automation systems, plant operation and control, maintenance and repair of systems and equipment

2.0 Responsibilities of purchaser:

- Details of civil design, building layout and drainage and sewage disposal details.

- Document on local site conditions related to climate, access and communications.
- Temporary water and power supply at one point within the dairy premises, if available, on chargeable basis.
- Lockable store, if available, for storage of expensive materials within the dairy premises. Otherwise contractor has to arrange on its own. Purchaser shall provide an open area during erection and commissioning of project.
- Engineering personnel to liaison with the supplier, Project Manager and the execution team.
- Lightning protection system of building.
- Permanent water and power supply at the time of commissioning of the plant.
- Adequate staff including operators, supervisors and engineers for testing, commissioning and product trials.
- All buildings including roads, drainage and minor civil works after and during plant execution, within the agreed schedule to enable commencement of erection activities to meet the overall complete schedule.
- Provision of and cost of services, raw products, packaging materials & chemicals (if available in the country).

GENERAL GUIDELINES

1.0 General Specification:

The following shall apply to all the equipment in various sections of the Refrigeration Plant.

All MS structures and equipment to be given one coat of anti-corrosive paint followed by two coats of paint of approved shade.

All motors installed outside the building shall have GI shrouds. Shrouds should be easily removable and should allow free air circulation as well as entry of electrical cables.

Suitable safety guards should be provided wherever required.

Makes of various equipment/components shall be selected out of the makes given in the tenders by Purchaser mutually after considering their merits.

All weld joints shall be ground smooth. All corners should be well-rounded.

Wherever a "Lot" has been indicated a detailed list shall be provided by the Contractor.

All instruments, controls, and Automation system should be manufactured by an internationally recognized Indian manufacturer or foreign manufacturer with suitable agency representation in India.

All fittings/equipment's are to conform to SMS standard.

Detailed preventive maintenance schedules as well as operational manuals of all equipment shall be provided by the contractor in the form of computer software after commissioning along with printed copies.

The manual shall cover the following aspects:

- Brief Process Description & Flow sheet.
- Unit-wise function and description.
- Equipment-wise details, operational instructions, maintenance procedures and schedules.
- Plant start-up, commissioning, normal operation, and emergency operation.
- Trouble-shooting.
- As built drawings of the equipment as build drawing connection diagrams.
- Spares inventory and services of supply.

The manuals and drawings are to be supplied as follows:

- 4 sets of manuals and drawings in hard copy.
- 3 sets of above in soft copy in CDs.

2.0 Automation:

The automation system shall be dispatched to site only after testing by simulation.

3.0 Bid Structure of Technical Section:

A. General:

This part of the tender document defines the way the bidders are required to structure the presentation of the technical section of the bid.

All the technical data required by the tender is to be provided in the format given in this section. If no format is given for any specific item the bidder may request formal approval of their own format at the bidders meetings.

Any bidder not following the required bid document structure or presenting technical data that is not the required format is liable to be deemed non-responsive.

B. Proposed Structure

The technical section of the bid is to be structured in the same order as the tender document. Each statement is to be numbered with the same sub-section & paragraph number as in the tender document. Every page of the document of the bid is to be numbered using the pre-fix of the sub-section and the suffix of the page no. The general structure is, therefore, to be as below:

Sub-section : Subject : Table of contents.

1. : Introduction.
2. : Responsibilities.
3. : General specifications.
4. : Design Basis.
5. : Project Management.
6. : List of equipment and specifications.
7. : Deviations from technical requirements.
8. : Additional items.
9. : Drawings and tables.
10. : Battery limits.

The bidder shall cover each requirement of the tender document by statements technical data & descriptive material and, in particular to detail the following:

Introduction

The bidder is to describe his technical proposal in detail, stating the processes and systems which he has applied in designing the plant. Also to highlight any special technical innovations that the bidder proposes to include in the plant that will improve the performance, reduce the operating cost, or improve product quality. Any such highlights should be cross referred with the bid sub-section and paragraph number as applicable.

Responsibilities

Responsibilities of the Contractor :

The bidder is required to specifically state his acceptance or non-acceptance of each clause in this subsection. Non-acceptance shall be deemed a deviation from the tender, and should be mentioned in the Technical/ Bidding Terms Deviations in the bid.

Responsibilities of Purchaser :

The bidder is required to state here any additional responsibilities that he considers or to be borne by Purchaser besides those described in the tender.

General Guidelines

The bidder is required to provide information asked for in this sub-section.

Design Basis

The bidder is required to follow the design basis in the tender, and indicate clearly where additional processes or alternative processes or equipment are considered to be necessary for achieving the optimum plant operating efficiency and optimum product quality within the standards specified.

Under the utilities quantify the peak and daily load of each utility & cross refer this to service load histograms that are to be provided with this bid.

Project Management

Time Schedule

The contractor is to state in this sub-section the proposed programme of implementation from receipt of order to commencement of product trials, in the form of MS Project, project Bar chart or PERT network.

Management Team

The contractor is to detail the make-up of the management team in terms of designation, qualifications & proposed man months of attendance in accordance of this section of the tender. Also it is to quantify the support that will be given by foreign collaborators, with designation and man-months attendance in India & at site. The bidder is to ensure that the following sections are fully detailed and quantify the duration and man-power applied to each.

- Execution
- Commissioning.
- Product trials.
- Training.
- Stand-by operation.
- Service cover.

List of equipment and specifications

The bidder is required to follow the sequence of tender document in each of the sections/sub-sections for which he bids, & make a statement on each paragraph. No item is to be left without a clarifying statement.

Deviation from technical requirements

All technical deviations are to be stated. This is mandatory, and failure to comply will make the bid liable to be deemed non-responsive.

Additional Items

The bidder should include additional items as anticipated by him, however, acceptance of any/all the items shall be at the discretion of Purchaser.

Drawings & Tables

The list of drawings and technical documents required for technical evaluation are included in this subsection. This includes a number of data sheet formats to be completed by the bidder. The completion of these formats is mandatory, and failure to comply will make the bid liable to be deemed non responsive.

Battery Limits

Any point in the battery limits that are not clear to the bidder should be raised for clarification.

9.0 PROJECT MANAGEMENT

1.0 Time Schedule:

The project execution shall be time-bound which would **5 months** from the date of award of the contract (Issuance of Letter of Intent-LOI) to the feeding of raw material into the plant.

The Project Manager will provide the Banas Dairy Project in charge with fortnightly progress reports which clearly indicate the actual Vs. planned progress and the new likely completion dates of supply, erection, commissioning and product trials.

The project staffing pattern shall be submitted with the offer and should include sufficient personnel to meet the execution time schedule.

Details of documentation to be submitted shall be according to the overall project programme.

2.0 Management Team:

A competent execution team shall be deputed at site and shall be headed by a Project Manager who shall be adequately experienced in Project Management of such magnitude and type. The Project Manager shall avail of assistance from reputed experts in various fields who shall be directly responsible for satisfactory execution.

The Project Manager shall be responsible for overall implementation of the entire project, from commencement to the final takeover of the plant.

Services of a Project Engineer shall be ensured for the day to day operations and co-ordination to ensure successful and satisfactory design, procurement, manufacture, inspection, erection, testing & commissioning of all the equipment/ facilities/ systems within the time-bound schedule.

The Project Manager and Project Engineer shall attend all technical and review meetings between various parties involved in the project and ensure implementation of all decisions taken in the meetings.

The Project Manager shall be responsible for detailed material accounting at site and management of the store maintained at site.

The Purchaser shall nominate a Project In charge with whom the supplier shall generally communicate/co-ordinate.

The contractor has to fully authorize the Project Manager to take on-the-spot decision with regard to :-

- a) Modification in layout and execution programme to suit local conditions.
- b) To purchase essential materials from local market to avoid delays.

For smooth execution of the project, a team of Project Manager and Key Personnel shall remain consistent throughout the execution period.

After satisfactory erection and testing, competent commissioning team shall be deputed to establish the performance parameters for a specific period.

3.0 Approvals:

Approval on technical documentation (with or without specified amendments) shall be given by Purchaser within ten working days after submission. The amendments which are not in the original scope of work or due to changes in concept, shall be taken up by the supplier as per mutually agreed rates to be decided before execution, and shall be binding on the supplier.

Supplier shall obtain approval for purchase of specific makes of equipment whose makes are not mentioned in his offer.

All the detailed design calculations regarding the selection of equipment sizes, system types, etc. shall be submitted to Purchaser for their specific observation and record.

4.0 Inspection:

For indigenous items, the supplier shall invite Purchaser for inspection and preliminary testing. The inspection may be required at various stages of manufacture/assembly for

some items. However, for imported items where the inspection has to be done abroad, the supplier shall do the inspection at his cost and submit the necessary test certificate.

5.0 Site work & Installation:

Protection of electronic equipment:

It is the responsibility of contractor to ensure that all the electronic equipment & control systems are fully protected against hostile environment, humidity, heat and dust that will be encountered during storage & installation.

6.0 Commissioning:

After satisfactory erection & testing a competent team shall be deputed to commission the plant & to run product trials & to establish performance parameters.

7.0 Product Trials & Performance Guarantees:

The plant will be operated at full capacity to the satisfaction of Purchaser for a period of **15 Days (After successfully validation completion)**, during which the entire plant including the utilities shall run simultaneously & the plant shall fulfill all the performance criteria. These operation tests shall be simultaneous & consecutive. Normally twenty-four hours of operation for the production and service equipment shall be considered as a day's operation. However, if the shut-down occurs due to external Force Majeure reasons, attributed to the any fault or problems of supplier equipment's, this shall be considered as full day of operation.

Performance & services consumption guarantees and the relevant penalties for not meeting the rated capacities and efficiencies shall be covered in detailed tender document.

APPENDIX-I

APPLICABLE INDIAN STANDARDS

A. MECHANICAL

- IS: 660 Safety code for mechanical refrigeration
- IS: 661 Code of practice for thermal insulation of cold storages
- IS: 662 Anhydrous ammonia
- IS:702 Industrial bitumen
- IS:778 Gunmetal gate, globe and check valves for general purposes
- IS:1703 Ball valves including floats for water supply purposes
- IS:1239 Mild steel tubes, tubular and other wrought steel pipe fittings
- IS:2041 Steel plates for pressure vessels used at moderate and low temperatures
- IS:2379 Colour code for the identification of pipelines
- IS:2494 V-belts for industrial purposes
- IS:2629 Hot-dip galvanizing of iron and steel
- IS:2825 Code for unfired pressure vessels
- IS:3233 Glossary of terms for safety and relief valves
- IS:3503 Steel for pressure vessels and welded structures
- IS:3601 Steel tubes for mechanical and general engineering purposes
- IS:3615 Glossary of terms used in refrigeration and air-conditioning
- IS:3624 Pressure and vacuum gauges
- IS:3696 Safety code for scaffolds and ladders
- IS:4049 Formed ends for tanks and pressure vessels
- IS:4503 Shell and tube type heat exchangers

IS:4544	Code of safety for ammonia
IS:4671	Expanded polystyrene for thermal insulation purposes
IS:4736	Hot-dip zinc coating on steel tubes
IS:4831	Units and symbols for refrigeration
IS:4984	HDPE pipes for potable water supplies, sewage and industrial effluents
IS:5428	Gauge glasses
IS:5905	Specification for sprayed Aluminum and zinc coating on iron and steel surfaces.
IS:6392	Steel pipe flanges
IS:8008	Injection molded HDPE fittings for potable water supplies
IS:8172	Vertical steel ladders
IS:8188	Treatment of water for industrial cooling systems
IS:9520	Nominal sizes for valves
IS:9623	Selection, use and maintenance of respiratory protective devices
IS:9762	Polythene floats for ball valves
IS:9890	General-purpose ball valves
IS:10005	SI units
IS:10234	Recommendations for general pipeline welding
IS:11132	Ammonia valves
IS:11329	Finned type heat exchanger for room air conditioner
IS:11330	Refrigeration oil separators
BS:3059	MS tubes for vertical condenser

B. ELECTRICAL

IS:325	Three-phase induction motors
IS:248	Electrical measuring instruments and their accessories
IS:2705	Current transformers
IS:2968	Dimensions of slide rails of electric motors
IS:3480	Flexible steel conduits for electrical wiring
IS:4064	Air-break switches
IS:8544	Motor starters for voltages not exceeding 1000 V
IS:9537	Conduits for electrical installation
IS:10028	Selection, installation & maintenance of transformers
IS:10118	Selection, installation & maintenance of switchgear & control gear
SP: 30	National Electrical Codes

Other standards to be followed for electrical work are listed in

Special Conditions of Contract for electrical installation Part-IV, Annexure IV.

Latest revisions shall be followed in all cases.

C. DUCTING, DUCT INSULATION FOR AIR-CONDITIONING SYSTEM

IS:655	Specification for metal air duct.
IS:227	Specification for galvanized steel sheet.
SMACNA	Sheet metal and air-conditioning contractors, National Association Standard for low velocity and high duct construction.

Note : If there any revision in the standard supplier has to consider the revised standard

INCLUSION FOR SCOPE OF SUPPLY:-

- Cattle Feed Plant Palanpur, Banas Dairy will give utility connection at one point & rest will be in the scope of supplier.
- All Electrical and Instrument/power cabling from Main panel to boiler pumps/Motor etc. will be under the scope of supplier.
- Any unskilled labour required at the time of erection and commissioning of plants at site will be in the scope of supplier.
- Lifting and shifting of equipments required at the time of supervision of erection and commissioning will be in supplier's scope.
- Lodging and boarding arrangement for installation manpower during erection and commissioning along with local conveyance will be in supplier's scope.
- All civil/structural Drawing will be provided by Supplier once P.O. is placed.
- Civil work shall be executed as per drawing provided by supplier.
- **Other items and work which is not mentioned in the tender but require for the installation and commissioning of Design, Engineering, Manufacture, Supply, labor job for Installation, Testing and Commissioning of Steam Generating Plant (Boiler) of 1 TPH for 600 TPD Cattle Feed Plant at Palanpur, Gujarat shall be in the scope of supplier. Cattle Feed Plant, Banas dairy will not pay the extra charges for those items.**

PERFORMANCE GUARANTEE:-

Guarantee for workmanship & performance for a Period of 12 months from Date of Successful Performance trial or 18 months from the date of supply.

In Guarantee period Repair and Replacement work will be done at no extra cost.

Note:

- Supplier to submit offer with detailed price break up of all major components
- Tools: - Tools required for operating system will supplied by the bidder.
- Maintenance: - During warrantee period supplier will install or replace the spares on F.O.C. (Free of Cost) basis.
- Even minutest deviation from required Technical Specification should be mentioned in the "Deviation Form". In case of failure of the same, entire Bid may be rejected.

Annexure- 7: Deviation Report

Name of Supplier:

Technical Deviations List:

-
-
-
-
-
-

Commercial Deviations List:

-
-
-
-

Note: Above mentioned format is indicative in nature and bidder may provide requisite information in their applicable format. In case of any other deviation not mentioned on this page, may lead to disqualifying of Bid.

Date:

Seal of Company & Signature of Authority

Annexure- 8: Format for Performance Bank Guarantee

(To be stamped according to Stamp Act and to be in the name of the executing Bank)

To,
The Banaskantha District Co. Op. Milk Producers' Union Ltd.,
(C/O - Banas Dairy)
At & Ta.-Palanpur,
Dist. – Banaskantha

In accordance with your Supply Order No.- Dtd., awarded to M/S
.....; for the supply and installation of,

which has been duly accepted by M/S; having its registered office at
.....; has requested for Performance Guarantee, as an irrevocable
Bank Guarantee (Performance Guarantee) for the amount of Rs...../- (Rupees
..... Only) is required to be submitted by the tenderer as a condition
precedent for participation in the said supply which amount is liable to be forfeited on the
happening of any contingencies mentioned in the tender document.

We, the bank, a body corporate constituted under the banking Companies
(Acquisition of Undertakings) Act, 1970 and is having its head office at
....., and a branch office amongst other places of business at
..... (Hereinafter referred to as "the Bank");

guarantee and undertake to pay immediately on demand without any recourse to the The
Banaskantha District Co. Op. Milk Producers' Union Ltd. (hereinafter referred to as Banas
Dairy), the amount of Rs...../- (Rupees Only) without
any reservation, protest, demur and recourse. Any such demand made by Banas Dairy,
Palanpur, shall be conclusive and binding on us irrespective of any dispute or difference raised
by the Tenderer.

This guarantee shall be irrevocable and shall remain valid up to
(Being months from the supply and installation of). If any further extension of
this guarantee is required, the same shall be extended to such required period on receiving
instructions from M/S , on whose behalf this guarantee is issued.

Notwithstanding whatever stated herein above

1. Our liability under this Bank Guarantee shall not exceed Rs./- (Rupees
..... Only).

2. The Bank Guarantee Shall be valid up to 2016 and shall have a lodgement period up to 2016.
3. The Bank is liable to pay the guarantee amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before, 2016.

Any Claim under this guarantee must be received by us before the expiry of this Bank Guarantee. If no such claim has been received by us on or before the said date, the rights of Banas Dairy under this Guarantee will cease. However, if such a claim has been received by us within the said date, all the rights of Banas Dairy, Palanpur under this Guarantee shall be valid and shall not cease until we have satisfied that claim.

In witness whereof the Bank, through its authorized office, has set its hand and stamp on this ____ th day of _____ at _____ .

For and on behalf of bank

Signature _____
 Name & Designation _____
 Authorization No _____
 Date and Place _____
 Bank Seal _____

The above guarantee is accepted by the Authority.

Annexure- 9: Vendor Registration Form

Note: This form is to be only filled by bidders, who have not provided the same earlier
Please mark all such columns as NOT APPLICABLE where you cannot provide information.

ADDRESS	
Name of the Vendor *Mandatory (This shall be the registered name of the firm. With the same name payments to party will be released) (CAPITAL LETTERS)	
Address of Head Office *Mandatory	
Street-1	
Street - 2	
City	
District Name	
State	
Pin Code	
Telephone (1) LL STD Code:	
(2) Mobile No. :	
Fax	
Email-id	
Company Web Site (if any)	
Name and Designation of Contact Person(s)	

Note :- If HO Office /Branch Office / Factory having in different state please give Bank details / Tax Details in separate sheet.

Address of Branch (If any)	
Street – 1	
Street – 2	
City	
State	
Pin Code	
Telephone	
Fax	
Email-id	
Name & Designation of Contact Person(s)	
Address of Factory / Factories / Subsidiaries / Sister Concerns (If any)	
Street	
City	
State	
Pin Code	
Telephone	
Fax	
Email-id	
Name & Designation of Contact Person	

Please use separate sheets if required

ORGANIZATION DETAILS	
Status of Organization	
Tick (☑) appropriate option.	Proprietary / Partnership / Company / LLP
Name of Business	
Nature of Enterprise Investment in Plant & Machinery: * Mandatory if applicable and pl. mention the MSMED Registration No. Date and Category micro, small, Medium IF NOT, PLEASE MENTION N/A If you are under MICRO, SMALL & MEDIUM ENTERPRISES DEVELOPMENT (MSMED) ACT 2006. MSMED Registration Certificate is Required	
Year of Establishment	
Registration Number (as per certificate from ROC/ Registrar of Firms.	
Name & Address of the Owner / Partners / Directors	Sr.No. Name Designation Address (Attach separate Sheet if Required)
BANK DETAILS * Mandatory	
Bank Account No.	
Name of the Bank	
Bank Address	
Bank City	
Bank Branch	
IFSC RTGS / NEFT No.	
Branch Code	
EXCISE DETAILS	
Excise Registration No.	
Excise Range	
Excise Division	
Excise Commissionerate	
CST No.	
GST Registration No.	
VAT(TIN)	
PAN	
Service Tax Registration No	
Service Category	
Service Tax Commissionerate	
Service Tax Commissionerate range	
Work Contract Tax Registration No.	
SERVICE DETAILS OF ORGANISATION	

Describe firm's major field(s) of Operation/Product range.	
Installed Capacity	
Average Monthly Production	
Sources of major Raw Materials	
Value of average raw materials inventory maintained	
Is Sub Vendor approval carried out by you for your vendors?	
Make/Type / Value of machines used. Please attach details.	
Manufacturing facilities available at work place. (Please attach details)	
Do you have separate Inspection Cell? Inspection & Testing facilities available at work. (Please attach details)	
Quality Control is responsible to whom?	

DECLARATION

The above information is true in all respects and we undertake to inform you about any change in the above particulars regarding our business from time to time. We also undertake the responsibility that in no case we will employ any consultant to deal with BKDCMPU Ltd., Palanpur

Mandatory fields are marked with an asterisk (*)

Note : The vendor creation will be made based on the information furnished by you in the above form for vendor registration. If, at any time in future, it comes to the knowledge of the management that any of this information is incorrect or any relevant information has been withheld then you are liable to be **black listed** without any notice in lieu thereof.

As a part of vendor registration, the copy of following **supporting documents** must be required and all details (whatever applicable) to be filled in the vendor registration form.

- | | |
|--|--|
| 1) PAN Card | 5) GST, CST & VAT Registration |
| 2) Demand Draft against Tender Fees Non Refundable | 6) Cancelled Cheque |
| 3) Excise Registration Certificate | 7) Service Tax Registration certificate |
| 4) Partnership Deed/Trade License | 8) List of Directors/Partners on company's Letter Head. |
| 9) Registration Certificate from ROC (in case of Companies) | |

Date : _____

Place : _____

Name & Signature of Proprietor/Partner/
Chief Executive under Proper Seal

For Office Use Only

Concerned Dept. Head

O.S.D. (Comm.)

Vendor Registration No. _____ Date : _____