TENDER DOCUMENTS

FOR

PACK 1

Design, Supply, Installation and Commissioning of Butter Tub Packing Machine, Capacity: 200 Tubs/min. (designed for 200g) at Amul Dairy, Anand. Qty. -1 Set.

PACK 2

Design, Supply, Installation and Commissioning of Cheese Blister Packing Machine, Capacity: 700 Tubs/min. at Kheda Satellite Dairy, Khatraj. Qty. - 1 Set.

PACK 3

Design, Supply, Installation and Commissioning of Ghee Plant Capacity: 2 Ton/Hour at Amul Dairy, Anand. Qty. - 1 Set.

BID REFERENCE NO: P&E/AMUL/ANAND/PLANT MACHINERIES/2016-17

KAIRA DISTRICT CO-OPERATIVE MILK PRODUCERS' UNION LIMITED
AMUL DAIRY, ANAND, GUJARAT-388 001

CONTENTS

SECTION – I
INVITATION FOR BID

Kaira District Co-operative Milk Producers' Union Limited.

Amul Dairy, Anand- 388 001, Gujarat (India)

Phone: +91-2692-225473

Invitation For Bid (IFB)			
Bid Reference	P&E/AMUL/ANAND/PLANT MACHINERIES/2016-17		
S.N.	Description	Estimated Cost (INR)	EMD (INR)
PACK 1.	Design, Supply, Installation and Commissioning of Butter Tub Packing Machine, Capacity:200 Tubs/min. (designed for 200g) at Amul Dairy, Anand. Quantity - 1 Set.	5 Crore	5 Lacs
PACK 2.	Design, Supply, Installation and Commissioning of Cheese Blister Packing Machine, Capacity:700 Tubs/min. at Kheda Satellite Dairy, Khatraj. Quantity - 1 Set.	6 Crore	6 Lacs
PACK 3.	Design, Supply, Installation and Commissioning of Ghee Plant Capacity: 2Ton/Hr at Amul Dairy, Anand. Qty. - 1 Set.	1 Crore	1 Lac

Duration (months)		6 Months
Bidding Document Sale.	Start	02.06.2016, Thursday
	Stop	22.06.2016, Wednesday
Last Date & Time of Bid.	Submission	22.06.2016, Wednesday, 3:00 PM
	Tender Opening (Only Technical)	23.06.2016, Thursday, 11.00AM
Date of Pre Bid Meeting.		09.06.2016, Thursday, 11.00AM
Place of Pre-Bid Meeting and Tender Opening.	Office of: General Manager (Projects & Engineering) Amul Dairy Road, Anand 388 001.	
Contact No. for inquiry if required.	Project office Phone: (02692) 225 473	

1.0 Eligibility Criteria

The Bidder/Supplier shall have turnover, in each of the last three years, at least equal to the estimated cost of the job and must have executed, in the last three years at least a contract of similar nature and of value not less than 50% of the estimated cost of the job. Apart from this the sole criteria will be the original key equipments manufacturer and technical competence to execute the job of this kind. Total value will be considered in the project including the imported machinery directly imported by the client for the project.

2.0 Purchase of Bidding Document

Interested bidders may download the Tender documents free of cost from the Website http://tender.amuldairy.com

3.0 Submission of Bid

The bidder who purchase the bidding document, are eligible for submission of bids in their name only.

4.0 Bid Security

All bid (if mentioned) must be accompanied by bid security (Earnest Money Deposit – EMD) in the form specified in the bidding document. The bids not accompanied with EMD shall be summarily rejected. The bid security shall be denominated in Indian Rupees of value as specified and shall be in the form of Bank Guarantee from Nationalized or Scheduled Banks or Demand draft in favor of Kaira District Co-operative Milk Producers' Union Ltd., payable at Anand.

The Bid security may be forfeited if

- A bidder/supplier withdraw its bid during the period of bid validity specified by the bidder/ bidders on the bid form or
- In case of successful bidder/ supplier, if the bidder/supplier fails to sign the contract.

5.0 Rights Reserved by Amul Dairy.

KDCMPU Ltd (Amul Dairy), at its sole discretion and without assigning any reason thereof, reserves the right to accept and / or reject the whole or part of any or all the bids received.

6.0 Validity

The offer should be valid for 90 days from the date of tender opening

7.0 Bidders should submit Technical and Commercial Bids Separately in sealed envelope.

Bids in single envelop will be Rejected.

Managing Director

SECTION – II
INSTRUCTION TO BIDDERS

CONTENTS

2. Contents of Bidding Document

2.1 The goods required, bidding procedures and contract terms are prescribed in the Bidding Document. The contents of the Bidding Document are organized in sections as given in the Table Contents at the beginning of this document.

2.2 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Document. Failure to furnish all information required as per the Bidding Document or submission of a bid not substantially responsive to the Bidding Document in every respect will be at the Bidder's risk and may result in the rejection of its bid.

3. Clarification of Bidding Document

3.1 A prospective Bidder requiring any clarification on the Bidding Document may notify the Purchaser in writing by fax / email at the Purchaser's mailing address indicated in the Invitation for Bids. The Purchaser will respond in writing to any request for clarification on the Bidding Document, which it receives not later than 7 days prior to the deadline for the submission of bids prescribed by the Purchaser. Written copies of the Purchaser's response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective Bidders, which have received the Bidding Documents. However, the Bidders cannot consider delay in receipt of clarifications, as a cause for requesting extension in the due date of submission of the bids.

3.2 Bidder can bid for any of Pack1, Pack2 and Pack3 .

4. Amendment of Bidding Document

4.1 At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Document by amendment.

4.2 The amendment will be notified in writing or by email or by fax or cable to all prospective Bidders, which have received the Bidding Documents and will be binding on them. The amendment will be attached to the bidding document sold subsequently.

4.3 In order to afford prospective Bidders reasonable time, in which to take the Amendment into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids.

5. Pre Bid Meeting

5.1 The bidder or his official representative is advised to attend a pre bid meeting which will be convened at the office of General Manager (Projects & Engineering), Amul Dairy, Anand. Clarifications shall be submitted to the bidders on the same day.

6 . Language of Bid

6.1 The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser shall be written in the

English language. Any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent passages in which case, for the purposes of interpretation of the bid, the English translation shall govern.

7 . Documents comprising the Bid

7.1 The bid prepared by the Bidder shall comprise the following Components:

7.1.1 A Bid Form and a Price Schedule completed in accordance with Clauses 7, 8 & 9.

7.1.2 Documentary evidence established in accordance with Clause 10 that the Bidder is qualified to perform the contract if its bid is accepted.

7.1.3 Documentary evidence established in accordance with Clause 11 that the goods and ancillary services to be supplied by the Bidder conform to the Bidding Document.

7.1.4 Bid security (Earnest Money Deposit) furnished in accordance with Clause 12 along with the bid security details form.

7.1.5 A statement of deviation and exception to the provision of bidding documents.

8. Bid Form

The Bidder shall complete the Bid Form and appropriate Price Schedule furnished in the Bidding Document, indicating for the goods to be supplied, a brief description of the goods, their country of origin, quantity and prices.

9. Bid Prices

9.1 The Bidder shall indicate on the appropriate Price Schedule attached to this document the total bid prices of the goods it proposes to supply, install and commission under the contract. To this end, the Bidders are allowed the option to submit bids for anyone or more packs specified in the "Schedule of Requirement" and to offer discounts for combined packs. However, Bidders must submit a bid for the complete requirement of goods and services specified under each pack, failing which, such bids will not be taken into account for evaluation& comparison and will not be considered for award.

Submission of Bids should be in separate sealed covers as,

1. Technical Bid.
2. Price Bid.

Technical Bid should be in details as per requirement of the tender.

Price Bid will be opened only after comparison of technical Bid.

9.2 Prices indicated on the Price Schedule shall be entered separately in the following manner:

9.2.1 The total price is to be given for the total scope considering and without considering EPCG benefit.

9.2.2 The price of the goods, quoted ex-factory, ex-showroom, ex-warehouse or off the-shelf, as applicable, including all customs duties and other duties, sales and other taxes already paid or payable on the components and row material used in the manufacture or assembly of goods quoted ex-factory or on the

previously imported goods of foreign origin quoted ex-showroom, ex-warehouse or off-the shelf.

9.2.3 Any excise duty (Customs Duty, Countervailing Duty etc. for import) applicable and payable on the goods along with tariff numbers and the details of classification of the goods, if this contract is awarded AS A PERCENTAGE of EXWORKS PRICE or otherwise indicating clearly in the price schedule format given.

9.2.4 Any sales and other taxes applicable, which will be payable on the goods if this Contract is awarded AS A PERCENTAGE of EX-WORKS, packed including ED PRICE or otherwise indicating clearly in the price, schedule format given.

9.2.5 Charges for packing and forwarding, inland transportation, insurance and other local costs incidental to delivery of the goods to their destination; AS A PERCENTAGE of EX-WORKS PRICE or otherwise indicating clearly in the price schedule format given.

9.2.6 The cost of installation and commissioning as described in the technical specifications and in accordance with Special conditions of Contract with regard to erection, testing and putting the equipment into satisfactory operations, including successful completion of performance and guarantee tests to be performed at the destination by Bidder and AS A PERCENTAGE of EX-WORKS PRICE or otherwise indicating clearly in the price schedule format given.

9.2.7 The cost of incidental services listed in Clause 7 of Special Conditions of Contract AS PERCENTAGE of EX-WORKS PRICE or otherwise indicating clearly in the price schedule format given.

9.3 The Bidder's separation of price components in accordance with above will be solely for the purpose of facilitating the comparison of bids by the Purchaser and will not in any way limit the Purchaser's right to contract on any of the terms offered.

9.4 Price of spare parts All the Bidders are required to submit the following details about the spare parts, along with their bids:

9.4.1 Spare parts required for the items quoted by the Bidders, for 2 years normal operation. The price should be part of contract.

9.4.2 Item wise prices of all the spare parts valid, for acceptance by the Purchaser and placement of orders, for one year from the date of bid opening.

10. Price Adjustment

Price quoted by the Bidder shall be subject to adjustment during the performance of the contract to reflect changes in the cost of labour and material components in accordance with the procedure specified in the special conditions of the contract. A bid submitted with a fixed price quotation will not be rejected but the price adjustment shall be treated as zero.

11. Bid Currency

11.1 Prices shall be quoted in Indian Rupees only for the goods and services, which the Bidder will supply if a contract is awarded against this invitation for bid. For import, ceiling amount in respective currencies should be mentioned along with exchange rates considered. The price adjustment shall be allowed on account of

any changes in the landed cost due to variation in the Exchange rates and / or Customs Duty (combined effect). For arriving at the variation in landed cost, the actual invoice value (from the foreign bidder) with bank certificate for Exchange Rates & bill of entry for Customs Duty paid has to be submitted as supporting documents. However, such changes shall be allowed only within the ceiling amount quoted and within the period of the contract. The variation will be worked out on the difference between Customs Duty rate / exchange rate mentioned in the Bid and the actual respective rates levied during the time of actual imports multiplied by the actual CIF value and not the ceiling value. The purchaser may opt for importing the key machinery direct in case it is deemed fit. But this will be as per the quoted price in the bid.

11.2 All claims shall be against the supporting documents.

12. Documents Establishing Bidder's Experience and Qualifications

12.1 Pursuant to Clause 7 the Bidder shall furnish, as part of its bid, documents establishing the Bidder's qualifications to perform the Contract if its bid is accepted. The Bidder should also give information in the format attached to the Bidding Document.

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

12.1.2 That in the case of a Bidder offering to supply goods and services under the Contract which the Bidder did not manufacture or otherwise produce,
The Bidder has been duly authorised by the goods' manufacturer or producer to supply the goods. The bid shall include manufacturer’s authorization Form given in the bidding documents.

12.1.3 That the Bidder has the financial, technical and production capability necessary to perform the Contract. To ascertain this, all bids submitted shall include the information as per the proform along with qualification application.

12.1.4 Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company or firm partnership, etc;

12.1.5 Details of experience and past performance of the Bidder on equipment offered and those of similar nature and those of similar nature within the past 5 years and details of current contracts in hand and other commitments.

12.1.6 Major items of plant and equipment available/ installed in the Bidder's factory premises.

12.1.7 Qualification and experience of key personnel for successful execution of the contract.

12.1.8 Reports on financial standing of the Bidder such as profit and loss statements, balance sheets and auditor's report of the past three years, bankers certificates etc.

12.1.9 Information regarding any current litigation in which the Bidder is involved

12.2 Bidders who meet the criteria given above are subject to be disqualified if they have made untrue or false representations 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 failures etc.

13. Documents Establishing Goods' Conformity to Bidding Document

13.1 Pursuant to Clause 6 the Bidder shall furnish, as part of its bid, documents establishing the conformity to the Bidding Document of all goods and services, which the Bidder proposes to supply under the Contract.

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

13.1.2 A detailed description of the goods' essential technical and performance characteristics

13.1.3 A list giving full particulars, including available sources and current prices, of all spare parts, special tools, etc. necessary for the proper and continuing functioning of the goods for a period of two years, following commencement of the goods' use by the Purchaser.

13.1.4 A clause by clause commentary on the Purchaser's Technical Specifications demonstrating the goods and services' substantial responsiveness to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

13.2 The purposes of the commentary to be furnished pursuant to above, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions are substantially equivalent or superior to those designated in the Technical Specifications.

14 Bid Security (Earnest Money Deposit)

14.1 Pursuant to Clause 6 the Bidder shall furnish, as part of its bid, bid security (Earnest Money Deposit) as specified in the NIT (Notice Inviting Tender).

14.2 The bid security is required to protect the Purchaser against the risk of Bidder's conduct, which would warrant the security forfeiture.

14.2.1 The bid security shall be denominated in Indian Rupees of value as specified and shall be in the form of BG or a Demand draft in favor of Kaira District Co-operative Milk Producers' Union Ltd., payable at Anand.

14.3 Any bid not accompanied with bid security in accordance with clause 14.1 and 14.3 above will be rejected by the purchaser as nonresponsive.

14.4 Unsuccessful Bidders' bid security will be discharged/ returned as promptly as possible but not later than 30 days after the expiration of the period of bid validity prescribed by the Purchaser. The successful Bidder's bid security will be discharged upon the Bidder's executing the Contract agreement on acceptance of the order & furnishing the performance security, pursuant to Clause 29.

14.5 The bid security may be forfeited:

14.5.1 If a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form; or

14.5.2 In the case of the successful Bidder, if the Bidder fails:

14.5.3 To sign the Contract in accordance with Clause 28.

14.5.4 To furnish performance security in accordance with Clause 29.

15 Period of Validity of Bids

15.1 Bids shall remain valid for 90 days after the last date of submission of the bids prescribed by the Purchaser, pursuant to Clause 16. A bid valid for a shorter period may be rejected by the purchaser as non-responsive.

15.2 In exceptional circumstance, the Purchaser may prior to expiry of the initial validity period, solicit the Bidders' consent to an extension of the period of validity. The request and the responses there to shall be made in writing (or by cable or telex/fax). The bid security provided under Clause 12 shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.

16. Format and Signing of Bid

16.1 The Bidder shall prepare two copies of the bid, clearly marking each "Original" and "Copy" as appropriate. In the event of any discrepancy between them, the original shall govern.

16.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. Written power-of-attorney must accompany the Bid to indicate the authorization. The person or persons signing the bid shall initial all pages of the bid, except for laminated printed literature.

16.3 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case, the person or persons signing the bid shall initial corrections.

17. Sealing and Marking of Bids

17.1 Technical bid and commercial bid should be submitted separately in sealed envelope.

17.2 The Bidders shall seal the original and each copy of the bid in an outer envelope, duly marking the envelopes as "original" and "copy."

17.3 All the inner and outer envelopes shall be addressed to the Purchaser and must bear the Invitation for Bids (IFB) reference number.

17.4 All the envelopes should bear the word "DO NOT OPEN BEFORE (The time and date of opening as specified).

17.5 The inner envelopes shall indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared "late."

17.6 If the outer envelope is not sealed and marked as required, the Purchaser will assume no responsibility for the bid's misplacement or premature opening.

A bid opened prematurely for this cause will be rejected by the Purchaser and returned to the Bidder.

18. Deadline for Submission of Bids

18.1 The Purchaser at the address specified must receive bids not later than the time specified for receipt of the bids.

18.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the Bidding Document in accordance with Clause 4 above in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

18.3 No telegraphic/ telephonic/ fax bids shall be considered. However, any amendment sent by a email or fax to the bid already submitted/received shall be considered provided it is received before the due date and time of opening of the bids and it is confirmed in writing by post.

19. Late Bids

Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, pursuant of Clause 16 will be rejected and returned unopened to the Bidder.

20. Modification and Withdrawal of Bids

20.1 The Bidder may modify or withdraw its bid after the bid's submission, provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of bids.

20.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of Clause15. A withdrawal notice may also be sent by fax or email followed by a signed confirmation copy, post marked not later than the deadline for submission of bids.

20.3 No bid may be modified subsequent to the deadline for submission of bids.

20.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal of a bid during this interval may result in the forfeiture of the Bidder's bid security, pursuant to Clause12.

21. Opening of Bids by Purchaser

21.1 The Purchaser will open the bids, in the presence of the Bidders' representatives who choose to attend, at the time and date specified in the Invitation for bids, at the office of the Amul Dairy, Anand, Gujarat India. The Bidders' representatives who are present shall sign a register/ form evidencing their attendance.

21.2 Only technical bid will be opened first,commercial bid will be opened separately only after technical comparison.

21.3 The Bidders' names, bid prices, modifications, bid withdrawals and the presence or absence of the requisite bid security and such other details as the purchaser, at its discretion, may consider appropriate will be announce during the opening of the bids.

22 Clarification of Bids

22.1 To assist in the examination, evaluation and comparison of bids the Purchaser may, at its discretion, ask the Bidders for a clarification of its bid. The request for clarification and the response shall be in writing and no change in the price or substance of the bid shall be sought, offered or permitted.

23 Preliminary Examination

23.1 The Purchaser will examine the bids to determine:

23.1.1 Whether they are complete,

23.1.2 Whether any computational errors have been made,

23.1.3 Whether required sureties have been furnished,

23.1.4 Whether the documents have been properly signed,

23.1.5 Whether the bids are generally in order.

23.2 Arithmetical errors will be rectified on the following basis:

23.2.1 If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Bidder does not accept the correction of the errors, its bid will be rejected. If there is a discrepancy between words and figures, the amount in words will prevail.

23.3 Prior to the detailed evaluation, pursuant to Clause22, the Purchaser will determine the substantial responsiveness of each bid to the Bidding Document. For purposes of these clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Document without material deviations. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

23.4 If the prices of certain components/sub assemblies/spare parts are not included, the Purchaser will load the offer with the cost of these in evaluation if goods/equipment/plant is functional. If the Purchaser considers that without these the goods/equipment is not functional, then the bid will be treated as incomplete and non responsive.

23.5 To facilitate loading incomplete bids, the highest cost of such components offered by other Bidders or the estimated cost of such components in the opinion of the Purchaser or other Purchases similarly made based on past experience shall be considered for loading incomplete bids.

23.6 Since the bid is invited for the complete job of design, supply, installation and commissioning of the equipment/plant, the incomplete or part bids submitted by any Bidder may not be considered for evaluation and may be liable for rejection.

23.7 A bid determined as not substantially responsive will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

23.8 The Purchaser may waive any minor informality or nonconformity or irregularity in a bid, which does not constitute a material deviation, provided such waiver, does not prejudice or affect the relative ranking of the Bidder.

24 Evaluation and Comparison of Bids

24.1 The Purchaser will evaluate and compare the bids previously determined to be substantially responsive, pursuant to Clause 21. No bid will be considered if the complete requirement covered under this work is not included in the bid.
However, the discounts offered by the Bidders, if any, will be taken into account in the evaluation of bids so as to determine the bid offering the lowest evaluated cost for the Purchaser in deciding award of contract/s.

24.2 The Purchaser's evaluation of a bid will include and take into account, in the case of goods manufactured in India or goods of foreign origin already located in India, sales and other similar taxes, which will be payable on the goods if a contract is awarded to the Bidder. Also, applicable excise duty payable by the Purchaser will be added to the bid price for evaluation.

24.3 The comparison shall be of free delivery at site basis including unloading and inclusive of all taxes (sales, works contract etc.) and duties (customs, counter vailing, excise etc.) of the goods offered from within India, such price to include all costs as well as duties and taxes paid or payable on components &row material incorporated in the goods as well as taxes & duties payable on finished goods and the installation and commissioning costs as per the provisions in the technical specification.

24.4 The Purchaser's evaluation of a bid will take into account, in addition to the bid price and the price of incidental services, the following factors, in the manner and to the extent indicated in this Clause 22 and in the Technical Specifications:

24.4.1 Cost of inland transportation, insurance and other costs within India incidental to delivery of the goods to their final destination and applicable excise duty payable by the Purchaser;

24.4.2 Delivery schedule offered in the bid.

24.4.3 The cost of components and service;

24.4.4 The availability of spare parts and after sales services for the equipment offered in the bid.

24.4.5 Deviation in payment schedule from that specified in the Special Conditions of Contract

24.4.6 The quality and adaptability of the equipment offered.

24.4.7 The performance and productivity of the equipment offered

24.5 Pursuant to above of Clause 22, the following evaluation methods will be followed:

24.5.1 Inland Transportation, ex-factory/ Insurance and Incidentals: For the goods offered, the Bidders must quote separately for inland transportation, insurance and other incidentals for delivery of goods to the project site as stated in Clause 8.

24.5.2 Delivery Schedule: The Purchaser desires to have delivery of the goods covered under the invitation, at the time specified in the Schedule of Requirements. The

estimated time of arrival of the goods at the project site/ destination should be calculated for each bid after allowing for reasonable transportation time.

24.5.3 Bidders shall state their bid price for the payment schedule outlined in the Special Conditions of Contract. Bids will be evaluated on the basis of this base price.

24.5.4 The goods/ plant offered shall have the guaranteed performance with regard to the rated capacity and operating parameters specified in the technical specifications related to Process performance and consumption guarantees.

24.6 If it is found that any Bidder for any reason indicates impractical or impossible data to arrive performance guarantees, such data shall be corrected and all the calculations shall be based on the data furnished by the highest Bidder for the purpose of comparison.

25 Contacting the Purchaser

25.1 Subject to Clause 21, no Bidder shall contact the Purchaser on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded.

25.2 Any effort by a Bidder to influence the Purchaser in the Purchaser's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidder's bid.

26 Post Qualification

26.1 In the absence of prequalification, the Purchaser will determine to its satisfaction whether the Bidder selected as having submitted the lowest evaluated responsive bid is qualified to satisfactorily perform the Contract.

26.2 The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to Clause 10 as well as such other information as the Purchaser deems necessary and appropriate including details of experience and records of past performance.

26.3 An affirmative determination will be a prerequisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's bid, in which event; the Purchaser will proceed to the next lowest evaluated bid to make a similar determination of that Bidder's capabilities to perform satisfactorily.

26.4 Subject to Clause 26, the Purchaser will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid provided further that the Bidder is determined to be qualified to perform the contract satisfactorily as per Clause 22 and 24.

27 Right to Vary Quantities at the Time of Award

The Purchaser reserves the right at the time of award of Contract to increase or decrease by up to 15% (Fifteen percent) the quantity of goods and services

specified in the Schedule of Requirements without any change in unit rates as specified in the price break .up or other terms and conditions.

28 Right to Accept any Bid and to Reject Any or All Bids

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Purchaser's action.

29 Notification of Award

29.1 Prior to expiration of the period of bid validity, the Purchaser may notify the successful Bidder in writing by registered letter or by cable or fax to be confirmed in writing by registered letter, that its bid has been accepted.

29.2 The notification of award will constitute the formation of the Contract.

29.3 Upon the successful Bidder's acceptance of the Purchase Order and signing of the contract agreement, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security.

30 Signing of Contract

30.1 At the same time as the Purchaser notifies the successful Bidder that its bid has been accepted, the Purchaser will send the Bidder the Contract Form /Purchase Order incorporating all agreements between the parties.

30.2 Within 30 days of receipt of the Contract, the successful Bidder shall return the duplicate copy of the Order duly signed and sealed in token of acceptance of the order to the Purchaser.

31 Performance Security

31.1 Within 30 of the receipt of the notification of award, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, in the Performance Security Form provided in the Bidding Document or another form acceptable to the Purchaser.

31.2 Failure of the successful Bidder to comply with requirement of Clause 28 or Clause 29 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the Purchaser may make the award to the next lowest evaluated Bidder or call for new bids.

32 Import License

For the goods of foreign origin, if any, offered on CIF Mumbai Port basis, the import license shall have to be arranged by the Purchaser and the details of such license shall be notified to the successful bidder. In case of goods offered from within India and for which a contact is awarded, if any import is required the license shall be arranged by bidders themselves.

1) EPCG/duty benefits: whether to take EPCG benefit/duty benefit is decided by Amul. However, Exporter has to provide related documents whenever asked by Amul.
2) For all import shipments: Shipping Company must allow "14 Free Container Detention Days" in the Bill of Lading.
3) Survey at Nhava Sheva will be carried out and only after survey delivery is taken. Exporter may depute his representative during survey.
4) In case of any damages found during survey. Exporter has to replace/compensate loss to Amul.
5) Factory Acceptance Test will be carried out at the Exporter premises with dry or actual product. Amul will depute his representative.
6) Bank Guarantee: all BGs should be from Nationalize bank.

33 Turnkey Contract

All the Bidders should quote for the design, supply, installation, testing and commissioning of equipment as detailed in this bidding document on turn-key basis within the scope specified in the technical specification. The Purchaser shall, however, be at liberty to award the contract for the part or whole of the work.

34 Breakup prices

All the Bidders shall furnish the cost separately for the supply and installation/commissioning along with detailed cost break-up (item-wise), which will be applicable for progressive payments. Items and works for which no breakup price is furnished by the Bidder will not be paid for by the Purchaser when supplied/executed and shall be deemed covered by other break-up prices. Such break up cost should be based on ex-works cost and percentage of ex-works cost should be indicated separately for packing and forwarding, sea/Air freight & Inland transportation, insurance, taxes & custom duties and other incidental charges, erection, and commissioning on percentage basis for each item.

35 Delivery Schedule of items

35.1 Bidders should submit a detailed item wise delivery schedule keeping in view the completion period of the contract. Such items shall be grouped under monthly Delivery schedule with total value of such items. This will facilitate for ensuring the cash flow requirement for the project.

35.2 Material should be supplied strictly as per the time schedule mentioned in Purchase Order. Amul has right to deduct the lump sum amount from the final bills if delay in material supply found.

36 Check list of bid submission

TABLE 1

SR NO	REQUIREMENT	TICK (E)
1	Technical Bid submission in sealed envelope	
2	Commercial Bid submission in sealed envelope	
3	Bid Form on your Letterhead	
4	Qualification Application and Supporting	
5	Price Schedule summary sheet and item wise break-up sheet	
6	Manufacturer's Authorization Form	
7	Technical Deviation Statement Form	
8	Commercial Deviation Statement Form	
9	Bid Security (Earnest Money Deposit)	
10	Power-of-attorney for authorised Signatory	

SECTION - III
GENERAL CONDITIONS OF THE CONTRACT

CONTENTS

1. Definitions

1.1 In this Contract, the following terms shall be interpreted as indicated:

1.2 "The Contract" means the agreement entered into between the Purchaser and the Bidder, including all attachments and appendices thereto and all documents incorporated by reference therein.

1.3 "The **Contract Price**" means the **price payable** to the Bidder under the Contract for the full and proper performance of its contractual obligations.

1.4 "The **Goods**" means all of the equipment, machinery, and/or other materials, which the Bidder is required to supply to the Purchaser under the Contract.

1.5 "**Services**" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligations of the Bidder covered under the Contract.

1.6 "The **Purchaser**" means the Organization purchasing the Goods and services and would include the term "**Owner**".

1.7 "The **Bidder**" means the individual or firm supplying the Goods and services under this Contract would include also the terms "**contractor**" or "**Bidder**".

1.8 **Engineer-in-charge** means the Engineer designated as such or other Engineer appointed from time to time by the Purchaser and notified in writing to the Bidder to act as Engineer-in-charge for the purposes of contract.

2. Application

These General Conditions shall apply to the extent that provisions in other parts of the Contract do not supersede them.

3. Definition of Country of origin

For purpose of this Clause "**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 origin of Goods and Services is distinct from the nationality of the Bidder.

4 Standards

The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the latest Indian Standards.

5 Use of Contract Documents and Information

5.1 The Bidder **shall not**, without the Purchaser's prior written consent, **disclose the Contract**, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Bidder

in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2 The Bidder **shall not**, without the Purchaser's prior written consent, make use of any document or information except for purposes of performing the Contract.

5.3 Any document, other than the Contract itself, shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Bidder's performance under the Contract if so required by the Purchaser.

6 Patent Rights

The Bidder shall **indemnify the Purchaser** against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof.

7 Performance Security

7.1 The Bidder shall furnish performance security to the Purchaser in the amount specified in the Special Conditions of Contract.

7.2 The proceeds of the performance security shall be payable to the Purchaser as **compensation for any loss** resulting from the Bidder's failure to complete its obligations under the Contract.

7.3 The **Performance Security** shall be denominated in **Indian Rupees** and shall be in one of the following forms:

7.3.1 A bank guarantee issued by a Nationalized Bank in India and in the form provided in the Bidding Document. Such bank guarantee shall be valid till the expiry of the warranty period.

7.3.2 Demand Draft from a Nationalized Bank in favor of Kaira District Co- Operative Milk Producers' Union Ltd. payable at Anand. No interest shall be paid on the security deposit, which shall be retained till the completion of the warranty period.

7.4 The performance security will be discharged by the Purchaser and returned to the Bidder not later than 30 days following the date of completion of the Bidder's performance obligations, including any warranty obligations, under the Contract.

8. Inspection and Tests

8.1 The Purchaser or its representative shall have the **right to inspect** and/or test the Goods to confirm their conformity to the Contract. The Special Conditions of Contract and/or the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Bidder in writing of the identity of any representatives, if retained for these purposes. Bidders must carry out test as per guideline of purchaser at their own cost.

8.2 The inspections and tests may be conducted on the date of delivery and/or at the Good's final destination. Where conducted on the premises of the Bidder or its subcontractor(s), all reasonable facilities and assistance including access to drawings and production data shall be furnished to the inspectors at no charge to

the Purchaser. In case of any defects or deficiency notified by the Purchaser's inspection authority, the Bidder will rectify and make good the same without delay and not proceed with further processing of such item(s) of Goods without obtaining approval from the inspection authority.

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

8.4 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 the Goods shipment from the country of origin.

8.5 Nothing in **this clause** shall in any way release the Bidder from any warranty or other obligations under this Contract.

9 . Packing and Marking

9.1 The Bidder shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to temperature, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2 The packing, marking and documents within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to **Clause 18,** in any subsequent instructions ordered by the Purchaser.

9.3 Each package shall be marked to indicate a) Name of the Bidder, b) Details of items in the package, c) Name of the Consignee, d) Purchase Order Number, e) Gross, net and tare weights of the item, f) Destination.

10. Delivery and Documents

10.1 Delivery of the goods shall be made by the Bidder in accordance with the terms specified by the Purchaser in its Schedule of Requirements and the Special Conditions of Contract. For the purpose of the Contract, "**FOB", "C&F", "CIF", "FOR Destination", "Free delivery at site"** and other trade terms used to describe the obligations of the parties shall have the meanings as per the common trade practices.

10.2 **DRAWINGS AND QAP:** Drawings & QAP to be submitted within 15 days from date of LOI / P.O in prescribed format of Purchaser. Necessary type test reports shall also be submitted along with the drawings in line with requirement. All drawings and documents shall be submitted in the name of KDCMPUL(AMUL)& PO reference shall appear in all drawings/documents/QAP/test report. Any delay

in the submission of drawings & QAP will reduce the agreed delivery period by equal time. Bidder has to give Weight & Volume details of the packed equipment for his scope of supply along with drawings to enable purchaser to arrange for suitable storage at site. All drawings/ documents shall be submitted in 3 sets (hard copy) for further submission to client. All the drawings and documents shall also be submitted in editable soft format.

10.3 RISK PURCHASE: In the event of any failure in supplying the equipment by stipulated delivery date or in the event of non-performance of ordered equipment after commissioning due to design and/or manufacturing defects, purchaser reserves the right and option to cancel the order in part or full and purchase such canceled equipment from elsewhere on account of and at the risk of bidder without prejudice to other terms, conditions of this purchase order.

11. Insurance

The goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the Special Conditions of Contract. Where the Purchaser requires delivery of the Goods on free delivery at site basis; the Bidder shall arrange and pay for marine insurance naming the Purchaser as the beneficiary. The Bidder shall provide a copy of the insurance policy along with invoice to the Purchaser who will make arrangements to extend the validity of the policy, if necessary. The Bidder shall initiate and pursue claim till settlement and promptly make arrangements for repair and/or replacement of any damaged item/s irrespective of settlement of claim by the underwriters.

12. Transportation

The Bidder is required under the Contract to deliver the Goods FOR destination, specified in the Schedule of Requirement. Transport of the Goods, up to the destination shall be arranged and paid for by the Bidder and the cost thereof shall be included in the Contract Price. Where the Bidder is required to effect delivery under any other terms, for example, by post or to another address in the source country, the Bidder shall be required to meet all transport and storage expenses until delivery. In all the above cases, transportation of the Goods after delivery shall be the responsibility of the Purchaser.

13. Incidental Services

13.1.0 As specified in the Special Conditions of Contract, the Bidder shall be required to provide any or all of the following services:

13.1.1 Performance or supervision of on-site assembly and/ or start-up of the supplied Goods;

13.1.2 Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; and manuals covering the operation and maintenance of automation software and control systems.

13.1.3 Furnishing of tools required for assembly and/or maintenance of the supplied goods

13.1.4 Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Bidder of any warranty obligations under this Contract an

13.1.5 Conduct of training of the Purchaser's personnel, at the Bidder's plant and/or on site, in assembly, start-up operation, maintenance and/or repair of the supplied Goods.

14. Spare Parts

14.1.0 As specified in the Special Conditions of contract, the Bidder may be required to provide any or all of the following materials and notifications pertaining to spare parts manufactured or distributed by the Bidder:

14.1.1 Such spare parts as the Purchaser may decide to purchase from the Bidder, provided that this decision shall not relieve the Bidder of any warranty obligations under the Contract; and

14.1.2 In the event of termination of production of the spare parts:

14.1.3 Advance notification to the Purchaser of the pending termination,in sufficient time to permit the Purchaser to procure its needed requirements; and

14.1.4 Following such termination, furnishing at no cost to the Purchaser, the soft copies, the blueprints, drawings and specifications of the spare parts, if and when requested.

14.1.5 The spares & consumables required till successful commissioning shall be in the scope of bidder.

14.1.6 Bidder confirms the availability of spare parts required for O&M of the equipment for a period of **10 years** from the date of LOI/PO.

14.1.7 Necessary commissioning spares to be considered in bidder’s scope which may be required during erection & commissioning of the equipment, without any extra cost implication to purchaser. The same shall be supplied to site within 2 days notice from purchaser.

14.1.8 Bidder has to submit spares price list, indicating complete technical specification, Part No. / Ordering no. of OEM.

15. Warranty/Guarantee

15.1 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 Bidder further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except in so far as the design or material is required by the Purchaser's Specifications) or from any act or omission of the Bidder, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination. The Bidder also guarantees that the Goods supplied shall perform satisfactorily as per the designed/rated/installed capacity

as provided for in the Contract. The warranty will not cover normal wear and tear of consumables and minor spares.

15.2 This warranty/guarantee shall remain valid for not less than 12 months after the goods or any portion thereof as the case may be, have been commissioned, or for not less than 18 months after the date of shipment / dispatch, whichever period concludes later. Bidder to submit the price for additional warranty of 18 months after expiry of above warranty period at the time of order finalization. Any rectification/replacement of any defective material supplied or works done during warranty period shall be made good without any time and cost implication to purchaser. Any repaired / modified or replaced part shall be subject to defect free guarantee for a further period of 12 months from the date of rectification /replacement.

15.3 The Purchaser shall promptly notify the Bidder in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the Bidder shall, with all reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Purchaser other than, where applicable, the cost of inland delivery of the repaired or replaced Goods or parts from the port of entry to the final destination.

15.5 If the Bidder, 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 **Bidder's risk and expense** and without prejudice to any other rights which the Purchaser may have against the Bidder under the Contract.

15.6 This warranty/guarantee shall not cover any damage/s resulting from normal wear and tear or improper handling by the Purchaser or his authorized representatives.

15.7 The Bidder shall guarantee the complete installation for satisfactory performance for a minimum period of twelve months from the date of commissioning. The Bidder at his own cost shall rectify any defect arising out of faulty installation or use of substandard material or workmanship.

16. Payment

16.1 The method and conditions of payment to be made to the Bidder under the Contract shall be specified in the Special Conditions of Contract.

16.2 The Bidder's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by shipping documents, submitted pursuant to Clause 10, and fulfillments of other obligations stipulated in the Contract.

16.3 Payments shall be made promptly by the Purchaser within forty five (45) days of submission of an invoice/claim by the Bidder and shall be in Indian Rupees only.

17. Prices

Prices charged by the Bidder for Goods delivered and Services performed under the Contract shall not, with the exception of price adjustments authorized by the special conditions of the contract, vary from the prices quoted by the Bidder in

its bid and the Contract shall be on fixed price basis. Variation due to changes in statutory levies and exchange rates (for imported items if quoted with foreign currencies multiplied by the exchange rates limited to the foreign currencies ceiling quoted) shall be acceptable within the contact period.

18. Change Orders

18.1 The Purchaser may, at any time, by a written order given to the Bidder make changes within the general scope of the Contract in any one or more of the following:

18.1.1 Drawings, designs or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser

18.1.2 The method of shipment or packing

18.1.3 The place of delivery or

18.1.4 The Services to be provided by the Bidder.

18.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Bidder's performance of any part of the work under the Contract, whether changed or not changed by the order, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Bidder for adjustment under this clause must be asserted within thirty (30) days from the date of the Bidder's receipt of the Purchaser's change order.

19. Contract Amendment

No variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

20. Assignment

The Bidder shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

21. Subcontracts

21.1 The Bidder shall notify the Purchaser in writing of all sub-contracts awarded under the Contract if not already specified in his bid. Such notification, in his original bid or later, shall not relieve the Bidder from any liability or obligation under the Contract.

21.2 Subcontracts must comply with the provisions of Clause 5.

22. Delays in the Bidder's Performance

22.1 Delivery of the Goods and performance of Services shall be made by the Bidder in accordance with the time schedule specified by the Purchaser in its Schedule of Requirements.

22.2 An unexcused delay by the Bidder in the performance of its delivery obligations shall render the Bidder liable to any or all of the following sanctions:

22.2.1 Forfeiture of its performance security,

22.2.2 Imposition of liquidated damages, and/or

22.2.3 Termination of the Contract for default

22.3 If at any time during performance of the Contract, the Bidder or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Bidder shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Bidder's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Bidder's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

23. Price Reduction Clauses

23.1 Subject to **Clause 25**, if the Bidder fails to deliver any or all of the Goods or perform the Services within the time period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages as under:

23.1.1 **For the Supply Component:**

A sum equivalent to **0.5%** of the contract value for each week of delay or part thereof.

23.1.2 **For the Erection and Commissioning Component:**

A sum equivalent to **0.5%** of the contract value for each week of delay or part thereof beyond the time specified in the contract for the successful completion of the plant.

The total amount so deducted as per above, shall not exceed **10 %** of the Contract value. Once the maximum is reached, the Purchaser may consider termination of the Contract.

23.1.3 **For the Supply Component :** Any delay beyond the agreed date of delivery, PRICE will be reduced at the rate of **0.5%** per week of total contract value, subject to maximum of 5% of the order value, without prejudice to any other terms/ conditions of this purchase order.

23.2 Any incremental taxes and levies on account of delay in performance of the Contract by the Bidder shall be to the Bidder's account.

24. Termination for Default

24.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Bidder, terminate the Contract in whole or in part:

24.1.1 If the Bidder fails to perform any other obligation(s) under the Contract or 24.1.2If the Bidder fails to deliver any or all of the Goods within the time period(s) specified in the Contract, or any extension thereof granted by the Purchaser pursuant to Clause 22.

24.2 In the event the Purchaser terminates the Contract in whole or in part, pursuant to Clause 24, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Goods similar to those undelivered, and the Bidder shall be liable to the Purchaser for any excess costs for such similar Goods.

However, the Bidder shall continue performance of the Contract to the extent not terminated.

24.3 Consequent to such termination of Contract, the Purchaser shall **recover** the **advance paid**, if any, to the Bidder along with **interest @ 18%** per annum **compounded quarterly** on the last day of March, June, September and December on the advance paid for the entire period for which the advance was retained by the Bidder.

25. Force Majeure

25.1 Not with standing the provisions of Clauses 22, 23 and 24, the Bidder shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

25.2 For purposes of this clause, "**Force Majeure**" means an event beyond the control of the Bidder and not involving the Bidder's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

25.3 If a Force Majeure situation arises, the Bidder shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Bidder 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.

26. Termination for Insolvency

26.1 The Purchaser may at any time terminate the Contract by giving written notice to the Bidder, without compensation to the Bidder, if:

26.1.1 The Bidder becomes bankrupt or otherwise insolvent,

26.1.2 The Bidder being a Company is wound up voluntarily by the order of a Court receiver, liquidator or Manager appointed on behalf of the debenture holders or circumstances shall have arisen which entitle the court or debenture holders to appoint a receiver, liquidator or a Manager, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

27. Termination for Convenience

27.1 The Purchaser, may by written notice sent to the Bidder, terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination be for the Purchaser's convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

27.2 The Purchaser shall purchase the Goods that are complete and ready for dispatch within 30 days after the Bidder’s receipt of notice of termination at the Contract terms and prices. For the remaining Goods, the Purchaser may decide:

27.2.1 To have any portion completed and delivered at the Contract terms and prices and/or

27.2.2 To cancel the remainder and pay to the Bidder an agreed amount for partially completed Goods and for materials and parts previously procured by the Bidder. Both Purchaser and Bidder shall mutually settle all terminations as per clause 24, 25, 26 and 27.

28. Resolution of Disputes

28.1 The Purchaser and the Bidder shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

28.2 If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Bidder have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the Special Conditions of Contract. These mechanisms may include, but are not restricted to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and/or international arbitration. The mechanism shall be specified in the Special Conditions of Contract.

29. Governing Language

The Contract shall be written in the language of the bid, as specified by the Purchaser in the Instructions to Bidders. Subject to **Clause 30**, that language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract, which are exchanged by the parties, shall be written in that same language.

30. Applicable Law

The Contract shall be interpreted in accordance with the laws of the Union of India.

31. Notices

31.1 Any notice given by one party to the other pursuant to the Contract shall be sent in writing or by fax / email and confirmed in writing to the address specified for that purpose in the Special Conditions of Contract.

31.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

32. Taxes and Duties

The **Bidder** shall be **entirely responsible** for all taxes, duties, license fees, etc. incurred until delivery of the contracted Goods to and taking over of the works by the Purchaser. The onus of paying all the statutory levies as per the applicable tariff heads and norms shall be on the Bidder.

33. Right to use defective equipment

If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the equipment proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such equipment until rectification of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchasers' operation.

34. Income Tax and Other Taxes

The Bidder shall be liable to pay all corporate taxes, income tax and other taxes that shall be levied according to the laws and regulations applicable from time to time and the price bid by the Bidder shall include all such taxes. Wherever the laws and regulations require deduction of such taxes at the source of payment, the Purchaser shall effect such deductions from the payment due to the Bidder. The remittance of amounts so deducted and issuance of certificate for such deductions shall be made by the Purchaser as per the laws and regulations in force. Nothing in the Contract shall relieve the Bidder from his responsibility to pay any tax that may be levied on income and profits made by the Bidder in respect of the Contract. The Bidder's staff, personnel and labour will be liable to pay personal income taxes in respect of such of their salaries and wages as are chargeable under the laws and regulations for the time being in force, and the Bidder shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations. The Purchaser shall not, in any way, be responsible for such payments by the Bidders' staff.

35 Jurisdiction

Settlement of any dispute out of the purchase order/ contract against this bid shall be subject to the courts at **Anand** only.

SECTION IV - PART I
SPECIAL CONDITIONS OF CONTRACT

CONTENTS

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall **prevail over** those in the General Conditions of Contract. The corresponding clause number of the General Conditions is indicated in parentheses:

1. Definitions (Clause 1)

1.1 The Purchaser is **Kaira District Co-operative Milk Producers' Union Limited** and would include the term "Owner"

1.2 The Bidder is (Name of Bidder).

1.3 Equivalency of Standards and Codes (Clause 4)

1.4 Wherever reference is made in the contract to the respective standards and codes in accordance with which goods and materials are to be furnished, and work is to be performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly set forth in the Contract. Where such standards and codes are national in character, or relate to a particular country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Purchaser's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Bidder and submitted to the Purchaser at least 30 days prior to the date when the Bidder desires the Purchaser's approval. In the event the Purchaser determines

that such proposed deviations do not ensure equal or higher quality, the Bidder shall comply with the standards set forth in the documents.

2. Performance Security (Clause 7)

The Performance Security shall be in the amount of 10% of the Contract price up to sixty days after the date of completion of performance obligations including warranty obligations.

3. Inspection and Tests (Clause 8)

The inspection of the Goods shall be carried out to check whether the Goods are in conformity with the technical specifications attached to the purchase order form and shall be in line with the inspection/test procedures laid down in the Schedule of Specifications and the Contract conditions.

4. Delivery and Documents (Clause 10)

4.1.1 **For imported goods:** Upon shipment, the Bidder/Supplier shall notify the Purchaser and the Insurance Company by fax / email the full details of the shipment including purchase order number, description of goods, quantity, the vessel, the bill of lading number and date, port of loading, date of shipment, port of discharge, etc. The Bidder/Supplier shall mail the following documents to the Purchaser, with a copy to the Insurance Company

4.1.2 **For imported goods:** Original and three copies of:

The **Bidder's invoice** showing purchase order no., Goods description, quantity, unit price, total amount;

The negotiable, clean, on-board bill of lading marked freight prepaid and three copies of non-negotiable bill of lading;

Packing list identifying contents of each package;

Insurance certificate;

Manufacturer's/Bidder's guarantee certificate;

Inspection certificate, issued by the nominated inspection agency and the Bidder's factory inspection report; and

Certificate for Country of origin.

The Bidder's certificate certifying that the defects pointed out during inspection have been rectified.

4.2 The Purchaser shall receive the above documents at least one week before arrival of the Goods at the port and, if not received, the Bidder will be responsible for any consequent expenses.

4.3 **For Domestic Goods:** Original and three copies of:

The Bidder's invoice showing purchase order no., Goods' description, quantity, unit price, total amount;

Delivery note/packing list/lorry receipt;

Manufacturer's/Bidder's guarantee certificate;

Inspection Certificate issued by the nominated inspection agency, and the Bidder's factory inspection report;

Excise gate pass/ Octroi receipts, wherever applicable, duly sealed indicating payments made; and

Any other document evidencing payment of statutory levies.

Single MCE insurance policy shall cover the entire project.

4.4 Note:The nomenclature used for the item description in the invoice/s, packing list/s and delivery note/s etc. should be identical to that used in the purchase order/contract. The dispatch particulars including name of Transporter, LR Number and date should also be mentioned in the invoice/s.

Ensure that material supplied are Brand new and defect free and also to be mentioned in Commercial Invoice.

5. Insurance (clause 11)

The marine/transit insurance shall cover an amount equal to 110% of the FOR destination value of the goods from "warehouse to warehouse" on "All Risks" basis including War Risks and Strike clauses valid for a period not less than 3 months after the date of arrival of Goods at final destination.

5.1 The Insurance charges shall be paid by successful Bidder towards all risks during storage, erection, testing, commissioning and up to acceptance of he plant.

6. Incidental services (Clause 13)

The incidental services shall be provided as per the requirements outlined in the Schedule of Specifications and as covered under Clause 3.13. The cost shall be included in the contract price, if provided for in the scope of the Contract.

7 Spare Parts (Clause 14)

Bidders shall carry sufficient inventories to assure ex-stock supply of consumable essential spares considered for the plant All spare parts and components shall be supplied as promptly as possible but in any case within three months of placement of order.

8 . Warranty/Guarantee (Clause 15)

The warranty/guarantee shall be as per provision under Clause 3.15 of General Conditions.

9 Payment (Clause 16)

Payment for supply, installation and commissioning contracts must be as below:

10% advance of total contract value **(Supply component)**on:

Acceptance of the order i.e.

1. Submission of the Duplicate copy of the order duly signed by the authorized signatory putting stamp of the Organization.
2. Execution of the Contract Form.

Against a bank guarantee for equivalent amount valid for 30 days beyond the stipulated delivery (as per schedule of delivery/supply)/ completion period

20% of the Supply value on first submission of Plant layout, and P&I Diagram for process and services. **(supply)**

60% progressive payment of supply value against safe receipt of goods at site. **(supply)**

10% of total contract value **(Supply)** against submission of bank guarantee valid for 1 year from the date of commissioning.

9.1.1 80 % of erection and commissioning value on Pro rata basis. For erection the payment shall be made on progression of erection as per Joint Measurement Sheet within 30 days of submission of JMS **(erection and commissioning)**

20% **Erection & Commissioning** value to be pay based on successful erection and Commissioning.

9.2 The Bank Guarantees should be obtained from Nationalized Banks and acceptable Foreign Banks operating in India (please refer to list given in the Appendices I).

9.3 Notes:

All Payments shall be made within 45 days from the date of submission of Invoice.

Payment shall be made on complete supply of an item/ group of items specified in the Contract as per the Price Break up. No payment shall be made if supply of an item/ group of items is incomplete.

Bank Guarantees for advance payment shall be released not later than 30 days after the date of delivery of all the Goods at their final destination.

For items, which do not involve any supply and the Bidder/ contractor has to do only the erection and commissioning, 60% payment shall be made on completion of erection of the items as per the break-up prices to be given in the Purchase Order.

9.4 Third party claims, bills and invoices will not be entertained during the contract by AMUL.

10 Rise

No rise adjustment during the project period.

11. Resolution of Disputes (Clause 28)

11.1 All disputes or differences in respect of which the decision is not final and conclusive shall, on the initiative of either party, be referred to the adjudication of sole Arbitrator. Within thirty days of receipt of notice from the Bidder of his intention to refer the dispute to arbitration, the Purchaser shall finalize a panel of three Arbitrators and intimate the same to the Bidder. The Bidder shall within fifteen days of receipt of this list select and confirm his acceptance to the appointment of one from the panel as Arbitrator. If the Bidder to communicate his selection of name, within the stipulated period, the Purchaser shall without delay select one from the panel and appoint him as the sole Arbitrator. If the Purchaser fails to send such a panel within thirty days, as stipulated, the Bidder shall send a similar panel to the Purchaser within fifteen days. The Purchaser shall then select one from the panel and appoint him as the sole Arbitrator within fifteen days. If the Purchaser fails to do so, the Bidder shall communicate to the Purchaser the name of one from the panel who shall then be the sole Arbitrator. The appointment of sole Arbitrator so made shall be final and conclusive.

11.2 The Arbitration shall be conducted in accordance with the provisions of the Indian Arbitration Act, 1996 and rules there under or any statutory modifications thereof for the time being in force. The Arbitration proceedings shall be held in Anand Only at the time as the sole Arbitrator may decide. The decision of the sole Arbitrator shall be final and binding upon the parties and the expenses of the Arbitrator shall be paid as may be determined by the Arbitrator.

11.3 Performance under the Contract shall, if reasonably possible, continue during the Arbitration proceedings and payments due to the Bidder by the Purchaser shall not be withheld, unless they are the subjects of the Arbitration proceedings. All awards for claims equivalent to Rupees thirty thousand or more shall be in writing and state the reasons for the amounts awarded.

11.4 Neither party is entitled to bring a claim to Arbitration if its Arbitrator has not been appointed within thirty days after expiration of the warranty/ guarantee period.

12. Notices (Clause 31)

For the purpose of all the notices, the following shall be the address of the Purchaser and Bidder.

Purchaser :
Kaira District Co- operative Milk Producers' Union Limited.
Anand- 388 001,
Gujarat , India Phone: +91-2692-225473,
Bidder: (address will be provided by bidder)

SECTION IV – PART II
SPECIAL CONDITIONS OF CONTRACT FOR ERECTION AND COMMISSIONING

CONTENTS

1.0 Sufficiency of Tender

The Bidder by bidding shall be deemed to have satisfied himself as to all the conditions and circumstances affecting the Contract Price, as to the possibility of executing the works as shown and described in the Contract, as to the general circumstances at the site of the works, as to the general labour position at site and to have determined the prices accordingly.

2.0 Programme of Installation & Commissioning

As soon as practicable after the acceptance of the bid, the Bidder shall submit to the Purchaser for his approval a comprehensive programmed in the form of PERT network/ bar chart and any other form as may be required by the Purchaser showing the sequence of order in which the Bidder proposes to carry out the works including the design, manufacture, delivery to site, erection and commissioning thereof. After submission to and approval by the Purchaser of such programmed, the Bidder shall adhere to the sequence of order and method stated therein. The submission to and approval by the Purchaser of such programmed shall not relieve the Bidder of any of his duties or responsibilities under the Contract. The programmed approved by the Purchaser shall form the basis of evaluating the pace of all works to be performed by the Bidder. The Bidder shall update the PERT Network every month, submit it to the Purchaser and shall inform the Purchaser the progress on all the activities falling on schedule for the next reporting date.

3 Preparation of Drawings for Approval

3.1 The Bidder should visit the site to acquaint himself in respect of existing site conditions and to know the details/information required for understanding the nature and type of civil construction works involved in the project. The Bidder shall submit to the Purchaser for approval:

Within the time given in the specification or in the program, such drawings, samples, patterns and models as may be called for therein, and in numbers therein required.

During the progress of works and within such reasonable times as the Purchaser may require such drawings of the general arrangement and details of the works as the Purchaser may require.

3.2 Wherever necessary, the Bidder would be provided with a set of architectural drawings for the buildings where the erection works would be carried out and also the equipment details/ drawings of various equipment handed over to the Bidder by the Purchaser.

3.3 The specifications/ conditions concerning the submission of drawings by the Bidder are detailed as under:

3.4 Within three weeks from the date of receipt of the order, Bidder shall furnish a list of all necessary drawings, which the Bidder shall submit for approval, identifying each drawing by a serial number and descriptive title and expected

date of submission. A brief list of drawings is given in *Table 1*. This list shall be revised and extended if necessary, during the progress of work depending on the nature of the contract also.

3.5 The Purchaser shall signify his approval or disapproval of all drawings or such drawings that would affect progress of the contract as per the agreed programmed.

3.6 The purchaser shall issue, within four weeks of time in all circumstances, any drawing requested by the Bidder and required to be provided by us. If the Bidder suffers delay and/ or incurs costs due to delay on purchaser's part in this regard, then the Purchaser shall take such delay into account in determining any extension of time to which the Bidder is entitled under Clause 15 hereof and the Bidder shall be paid the amount of such cost as shall be reasonable.

3.7 P&I Drawings, Plant Layout and GA Drawings submitted for approval shall be signed by responsible representative of Bidder and shall be to any one of the following sizes in accordance with Indian Standards: "**A0, A1, A2, A3 and A4**".

3.8 All drawings shall show the following particulars in the lower right hand corner in addition to Bidder's name:

Name of the Purchaser	Date of drawing
Project Title	Drawing number
Title of drawing	Space for drawing number
Scale	

3.9 In addition to the information provided on drawings, each drawing shall carry a revision number, date of revision and brief description of revision carried out. Whenever any revision is carried out, correspondingly revision number must be updated.

3.10 All dimensions on drawings shall be in metric units.

3.11 Drawings (**three sets**) submitted by the Bidder for approval will be checked, reviewed by the Purchaser, and comments, if any, on the same will be conveyed to the Bidder. It is the responsibility of the Bidder to incorporate correctly all the comments conveyed by the Purchaser on the Bidder's drawings. The drawings, which are approved with comments, are to be re-submitted to the Purchaser for purpose of records. Such drawings will not be checked/reviewed by the Purchaser to verify whether the Bidder has incorporated all the comments. If the Bidder is unable to incorporate any comments in the revised drawings, Bidder shall clearly state in his forwarding letter such non-compliance along with the valid reasons.

3.12 Drawings prepared by the Bidder and approved by the Purchaser shall be considered as a part of the specifications. However, the examination of the drawings by the Purchaser shall not relieve the Bidder of his responsibility for engineering design, workmanship, and quality of materials, warranty

obligations and satisfactory performance on installation covered under the contract.

3.13 If at any time before completion of the work, changes are made necessitating revision of approved drawings, the Bidder shall make such revisions and proceed in the same routine as for the original approval.

3.14 Date of submission: In the event, the drawings submitted for approval require many revisions amounting to redrawing of the same, and then the date of submission of the revised drawings would be considered as the date of submission for approval.

3.15 The Bidder shall furnish to the Purchaser before the works are taken over, Operating and Maintenance instructions together with Drawings of the works as completed, in sufficient detail to enable the Purchaser to maintain, dismantle, reassemble and adjust all parts of the works. Unless otherwise agreed, the works shall not be considered completed for the purposes of taking over until such instructions and drawings have been supplied to the Purchaser.

4.0 Superintendence, Team and Conduct

4.1 The Bidder shall employ one or more competent representatives, whose name or names shall have previously been communicated in writing to the Purchaser by the Bidder, to superintend the carrying out of the works on the site. The said representative or if more than one shall be employed, then one of such representatives shall be present on the site during all times, and any orders or instructions which the Purchaser may give to the said representative of the Bidder shall be deemed to have given to the Bidder. The said representative shall have full technical capabilities and complete administrative and financial powers to expeditiously and efficiently execute the work under the contract.

4.2 The Bidder shall, execute the works with due care and diligence within the time for completion and employ Bidder's team comprising qualified and experienced engineers together with adequate skilled, semi-skilled and unskilled workmen in the site for carrying out the works. The Bidder shall ensure adequate workforce to keep the required pace at all times as per the schedule of completion. Bidder shall also ensure availability of competent engineers during commissioning/start up, trial runs, Operation of the plant/equipment till handing over of the plant.

4.3 The Bidder shall furnish the details of qualifications and experience of their senior supervisors and engineers assigned to the work site, including their experience in supervising erection and commissioning of plant and equipment of comparable capacity.

4.4 When the Bidder or Bidder's representative is not present on any part of the work where it may be desired to give directions in the event of emergencies, orders may be given by the Purchaser and shall be received and observed by the supervisors or foremen who may have charge of the particular part of the work in reference to which orders are given. Any such instructions, directions or notices given by the Purchaser shall be deemed given to the Bidder.

4.5 The Bidder shall furnish to the Purchaser a fortnightly labor force report showing by classifications the number of employees engaged in the work.The Bidder's employment records shall include any reasonable information as may be required by the Purchaser. The Bidder should also display necessary information as may be required by statutory regulations.

4.6 None of the Bidder's supervisors, engineers, or labourers may be withdrawn from the work without notice to the Purchaser and further no such withdrawals shall be made if in the opinion of the Purchaser, it will adversely affect the required pace of progress and/or the successful completion of the work.

4.7 The Purchaser shall be at liberty to object to any representative or person, skilled, semi-skilled or unskilled worker employed by the Bidder in the execution of or otherwise about the works who shall, in the opinion of the Purchaser, misconduct himself or be incompetent, or negligent or unsuitable, and the Bidder shall remove the person so objected to, upon receipt of notice in writing from the Purchaser and shall provide in that place a competent representative at Bidder's own expense within a reasonable time.

4.8 In the execution of the works no persons other than the Bidder, sub-Bidder and their employees shall be allowed on the site except by the written permission of the Purchaser.

5. 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 in regard to:

Any additional drawing and clarifications to exhibit or illustrate details.

Variations or modifications of the design, quality or quantity of work or the additions or omissions or substitution of any work.

Any discrepancy in the drawings or between the schedule of quantities and/or specifications.

Removal from the site of any material brought there by the Bidder, which are unacceptable to the Purchaser and the substitution of any other material thereof.

Removal and/or re-execution of any work erected by the Bidder, which are unacceptable to the Purchaser.

Dismissal from the work of any persons employed there upon who shall in the opinion of the Purchaser,misconduct him, or be incompetent or negligent.

Opening up for inspection of any work covered up.

Amending and making good of any defects.

6. Right of the Purchaser

6.1 Right to direct works

The Purchaser shall have the right to direct the manner in which all works under this contract shall be conducted, in so far as it may be necessary to secure the safe and proper progress and specified quality of the works. All work shall be done and all materials shall be furnished to the satisfaction and approval of the Purchaser.

Whenever in the opinion of the Purchaser, the Bidder has made marked departures from the schedule of completion or when circumstances or requirement force such a departure from the said schedule, the Purchaser, in order to ensure compliance with the schedule, shall direct the order, pace and method of conducting the work, which shall be adhered to by the Bidder.

If in the judgment of the Purchaser, it becomes necessary at any time to accelerate the overall pace of the plant erection work, the Bidder, when directed by Purchaser, shall cease work at any particular point and transfer Bidder's men to such other point or points and execute such works, as may be directed by the Purchaser and at the discretion of the Purchaser.

6.2 Right to order modifications of methods and equipment

If at any time the Bidder's methods, materials or equipment appear to the Purchaser to be unsafe, inefficient or inadequate for securing the safety of workmen or the public, the quality of work or the rate of progress required, the Purchaser may direct the Bidder to ensure safety, and increase their efficiency and adequacy and the Bidder shall promptly comply with such directives. If at any time the Bidder's working force and equipment are inadequate in the opinion of the Purchaser, for securing the necessary progress as stipulated, the Bidder shall if so directed, increase the working force and equipment to such an extent as to give reasonable assurance of compliance with the schedule of completion. The absence of such demands from the Purchaser shall not relieve the Bidder of Bidder's obligations to secure the quality, the safe conducting of the work and the rate of progress required by the contract. The Bidder alone shall be and remain liable and responsible for the safety, efficiency and adequacy of Bidder's methods, materials, working force and equipment, irrespective of whether or not the Bidder makes any changes as a result of any order or orders received from the Purchaser.

6.3 Right to inspect the work

The Purchaser's representative shall be given full assistance in the form of the necessary tools, instruments, equipment and qualified operators to facilitate inspection.

The Purchaser reserves the right to call for the original test certificates for all the materials used in the erection work.

In the event the Purchaser's inspection reveals poor quality of work/materials, the Purchaser shall be at liberty to specify additional inspection procedures if required, to ascertain Bidder's compliance with the specifications of erection work.

Even though inspection is carried out by the Purchaser or Purchaser's representatives, such inspection shall not, however, relieve the Bidder of any or all responsibilities as per the contract, nor prejudice any claim, right or privilege which the Purchaser may have because of the use of defective or unsatisfactory materials or bad workmanship.

7. Bidder's Functions

7.1 The Bidder shall provide everything necessary for proper execution of the works, according to the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein, provided that the same can reasonably be inferred there from and if the Bidder finds any discrepancy therein, Bidder shall immediately refer the same to the Purchaser whose decision shall be final and binding on the Bidder.

7.2 The Bidder shall proceed with the work to be performed under this contract in the best and workman like manner by engaging qualified and efficient workers and finish the work in strict conformance with the drawings and specifications and any changes/modifications thereof made by the Purchaser.

8. Variations

8.1 The Purchaser shall make any variation of the form, quality or quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion be desirable, he shall have power to order the Bidder to do and the Bidder shall do any of the following:

- Increase or decrease the quantity of any work included in the contract,
- Omit any such work,
- Change the character or quality or kind of any such work,
- Change the levels, lines, position and dimensions of any part of the works
- Execute additional work of any kind necessary for the completion of the works

and no such variation shall in any way vitiate or invalidate the contract, but the value, if any, of all such variations shall be taken into account in ascertaining the amount of the Contract price.

8.2 The Bidder shall make no such variations without an order in writing of the Purchaser. Provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this clause, but is the result of the quantities exceeding or being less than those stated in the Contract/Bill of Quantities. Provided also that if for any reason the Purchaser shall consider it desirable to give any such order verbally, the Bidder shall comply with such order and any confirmation in writing of such verbal order given by the Purchaser, whether before or after the carrying out of the order, shall be deemed to be an order in

writing within the meaning of this clause. Provided further that if the Bidder shall within seven days confirm in writing to the Purchaser and the Purchaser shall not contradict such confirmation in writing within 14 days, it shall be deemed to be an order in writing by the Purchaser.

8.3 All extra or additional work done or work omitted by order of the Purchaser shall be valued at the rates and prices set out in the contract if in the opinion of the Purchaser, the same shall be applicable. If the contract does not contain any rates or prices applicable to the extra or additional work, then suitable rates or prices shall be agreed upon between the Purchaser and the Bidder. Any Extra Work, carried out by the Bidder would be at mutually agreed cost

8.4 Provided that if the nature or amount of any omission or addition relative to the nature or amount of the whole of the works or to any part thereof shall be such that, in the opinion of the Purchaser, the rate or price contained in the contract for any item of the works is, by reason of such omission or addition, rendered unreasonable or inapplicable, then a suitable rate or price shall be agreed upon between the Purchaser and the Bidder. In the event of disagreement the Purchaser shall fix such other rate or price as shall, in his opinion, be reasonable and proper having regard to the circumstances.

8.5 Provided also that no increase or decrease mentioned above or variation of rate or price shall be made unless, as soon after the date of the order as is practicable and, in the case of extra or additional work, before the commencement of the work or as soon thereafter as is practicable, notice shall have been given in writing:

1) By the Bidder to the Purchaser of his intention to claim extra payment or a varied rate or price, or

2) By the Purchaser to the Bidder of his intention to vary a rate or price
3) No price variation on part of quantity increase or decrease.

8.6 The Bidder shall send to the Purchaser's representative once in every month an account giving particulars, as full and detailed as possible, of all claims for any additional payment to which the Bidder may consider himself entitled and of all extra or additional work ordered by the Purchaser which he has executed during the preceding month.

8.7 No final or interim claim for payment for any such work or expense will be considered which has not been included in such particulars. Provided always that the Purchaser shall be entitled to authorize payment to be made for any such work or expense, notwithstanding the Bidder's failure to comply with this condition, if the Bidder has, at the earliest practicable opportunity, notified the Purchaser in writing that he intends to make a claim for such work.

8.8 The work shall be carried out as approved by the Purchaser or his authorized representative/s from time to time, keeping in view the overall schedule of completion of the project. The Bidder's job schedule must not disturb or interfere

with Purchaser's or the other Bidder's schedules of day-to-day work. The Purchaser will provide all reasonable assistance for carrying out the jobs.

8.9 Night work will be permitted only with prior approval of the Purchaser. The Purchaser may also direct the Bidder to operate extra shifts over and above normal day shift to ensure completion of contract as per schedule. Adequate lighting wherever required should be provided by the Bidder at no extra cost. The Bidder should employ qualified electricians and wiremen for these facilities. In case of Bidder's failure to provide these facilities and personnel, the Purchaser has the right to arrange such facilities and personnel and to charge the cost thereof to the Bidder.

8.10 In order to enable the Purchaser to arrange for insurance of all items received at the site including the items of supply covered under this contract, the Bidder shall furnish necessary details of all the equipment immediately on its receipt at site, to the Purchaser. Any default on the part of the Bidder due to which any item does not get covered under the insurance of the Purchaser; the consequential losses shall be charged to the Bidder.

8.11 The Purchaser shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment of the Bidder or any sub-Bidder, save and except an accident or injury resulting from any act or default of the Purchaser, his agents, or servants. The Bidder shall indemnify and keep indemnified the Purchaser against all such damages and compensation, save and except as aforesaid and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

8.12 The Bidder shall ensure against such liability with an insurer approved by the Purchaser, which approval shall not be unreasonably withheld, and shall continue such insurance during the whole of the time that any persons are employed by him on the works shall, when required, produce to the Purchaser or Purchaser's representative such policy of insurance and the receipt for payment of the current premium. Provided always that, in respect of any persons employed by any sub-Bidder, the Bidder's obligations to ensure as aforesaid under this sub-clause shall be satisfied if the sub-Bidder shall have insured against the liability in respect of such persons in such manner that the Purchaser is indemnified under the policy, but the Bidder shall require such sub-Bidder to produce to the Purchaser or Purchaser's representative, when required such policy of insurance and the receipt for the payment of the current premium.

8.13 Whenever proper execution of the work under the contract depends on the jobs carried out by some other Bidder, the Bidder should inspect all such erection and installation jobs and report to the Purchaser regarding any defects or discrepancies. The Bidder's failure to do so shall constitute as acceptance of the other Bidder's installation/jobs as fit and proper for reception of Bidder's works except those defects which may develop after execution. Bidder should also report any discrepancy between the executed work and the drawings. The Bidder

shall extend all necessary help/cooperation to other Bidders working at the site in the interest of the work.

8.14 Bidder shall carryout final adjustments of foundations, leveling and dressing of foundation surfaces, bedding and grouting of anchor bolts, bedplates etc. required for seating of equipment in proper position. The Bidder shall be responsible for the reference lines and proper alignment of the equipment. However, all civil works like making cut outs in walls, floors and ceilings for pipelines shall be done by the purchaser. Adjustment &leveling are to be carried out by the Bidder at no extra cost. The Purchaser shall arrange the necessary refilling/repairs of these cut outs and pockets. The Bidder should arrange for laying the supports, cut outs, grouting of bolts, etc., when the civil works are in progress, so as to avoid refilling/repair works. The Purchaser at Bidder's costs shall make the damages occurring to civil and other works good. For fixing of piping/equipment supports on wall/beams/roof floor etc., preferably anchor bolts shall be used by the Bidder. Drilling of holes for fixing anchor bolts & supply of anchor bolts is in the scope of Bidder without any extra cost.

8.15 The Bidder shall keep a check on deliveries of the equipment covered in the scope of erection work and shall advise the Purchaser well in advance regarding possible hold-up in Bidder's work due to the likely delay in delivery of such equipment/components to enable him to take remedial actions.

9. Duties of the Bidder Vis-à-Vis the Purchaser

9.1 The equipment and the items, if any, to be supplied by the Purchaser for erection, testing and commissioning shall be as listed in the contract.

9.2 Besides the utilities/ services as specified in battery limits, Purchaser shall also provide the following assistance/ facilities to the Bidder for carrying out the installation work:

Plant building ready for installation of equipment/items.

Necessary temporary water for carrying out the installation shall be supplied at only one point within the project site by the Purchaser free of charge. All necessary distribution taping from this point on wards shall be the Bidder's responsibility.

Necessary temporary power for carrying out the installation shall be arranged by the Bidder at Bidder's own cost. The Purchaser on written request by the Bidder will issue the necessary authorization letter.

9.3 If the power is provided to you, the recovery @1% of total installation charges will be deducted from the erection bill of the Bidder. However, the Bidder shall supply all the items such as energy meter, switchgear etc. required for getting temporary power.

9.4 The details of temporary water and power requirements shall be furnished one month in advance by the Bidder to enable the Purchaser to make timely arrangement.

9.5 If the Bidder suffers delay and/or incurs costs from failure on the part of the purchaser to give possession of the civil works in accordance with the mutually agreed schedule, the purchaser shall determine:

1. Any extension of time to which the Bidder is entitled under **clause 22 of GCC** (General Conditions of Contract) and

2. The amount of such costs, which shall be added to the contract price, and shall

3. notify the Bidder accordingly.

10. Supply of Tools, Tackles And Materials

The Bidder shall, at his own expense, provide all the necessary equipment, tools and tackles, haulage power, consumables necessary for effective execution and completion of the works during erection and commissioning.

11. Protection of Plant

11.1 The Purchaser shall not be responsible or held liable for any damage to person or property consequent upon the use, misuse or failure of any erection tools and equipment used by the Bidder or any of Sub-bidder of Bidders even though such tools and equipment may be furnished, rented or loaned to the Bidder or any of Sub-Bidders of Bidders. The acceptance and/or use of any such tools and equipment by the Bidder or Sub-Bidder of Bidder shall be construed to mean that the Bidder accepts all responsibility for and agrees to indemnify and save the Purchaser from any and all claims for said damages resulting from the said use, misuse or failure of such tools and equipments.

11.2 The Bidder and Sub-Bidder of the Bidders shall be responsible, during the works, for protection of work, which has been completed by other Bidders. Necessary care must be taken to see that the Bidder's men cause no damage to the same during the course of execution of the work.

11.3 All other works completed or in progress as well as machinery and equipment that are liable to be damaged by the Bidder's work shall be protected by the Bidder and protection shall remain and be maintained until the Purchaser directs its removal.

11.4 The Bidder shall effectively protect from the effects of weather and from damages or defacement and shall cover appropriately, wherever required, all the works for their complete protection.

11.5 The Bidder shall carry out the work without damage to any work and property adjacent to the area of Bidder's work to whomsoever it may belong and without interference with the operation of existing machines or equipment.

11.6 Adequate lighting, guarding and watching at and near all the storage handling, fabrication, pre-assembly and erection sites for properly carrying out the work and for safety and security shall be provided by the Bidder at Bidder's cost. The Bidder should adequately light the work area during night time also. The Bidder should also engage adequate electricians/wiremen, helper etc to carry out and maintain these lighting facilities. If the Bidder fails in this regard, the Purchaser may provide lighting facilities as he may deem necessary and charge the cost thereof to the Bidder.

11.7 The Bidder shall take full responsibility for the care of the works or any section or portions thereof until the date stated in the taking over certificate issued in respect thereof and in case any damage or loss shall happen to any portion of the works not taken over as aforesaid, from any cause whatsoever, the same shall be made good by and at the sole cost of the Bidder and to the satisfaction of the Purchaser. The Bidder shall also be liable for any loss of or damage to the works occasioned by the Bidder or the Sub-Bidder of the Bidder in the course of any operations carried out by the Bidder or by the Bidder's Sub-Bidders for the purpose of completing any outstanding work or complying with the Bidder's obligations.

12. Unloading, Transportation and Inspection

12.1 The Bidder shall be required to unload all the materials/equipment from the carriers, those received at site after Bidder's team arrives at site. Bidder shall be paid extra for unloading of the equipment being supplied by the purchaser whereas no extra payment for unloading of the equipment/piping shall be paid to Bidder for the equipment being supplied by the Bidder. The Bidder shall plan in advance, based on the information received from the Purchaser, Bidder's requirement of various tools, tackles, jacks, cranes, sleepers etc. required to unload the material/equipment promptly and efficiently. The Bidder shall ensure that adequate and all measures necessary to avoid any damage whatsoever to the equipment at the time of unloading are taken.

12.2 Any demurrage/detention charges incurred due to the delay in unloading the material/equipment and releasing the carriers shall be charged to the Bidder's account.

12.3 The Bidder shall be responsible for the reception on site of all plant and Bidder's equipment delivered for the purposes of the contract.

12.4 The Bidder shall safely transport/shift the unloaded materials/equipment by the Bidder to the storage area.

12.5 All the materials/equipment received by the Purchaser prior to arrival of the Bidder at site shall be handed over to the Bidder and there upon the Bidder shall inspect the same and furnish the receipt to the Purchaser. The manner in which the inspection shall be carried out is enumerated below:

12.6 The materials/equipment would be carefully unpacked by opening the wooden cases/other modes of pickings as the case may be.

12.7 Detailed inventory of various items would be prepared clearly listing out the shortages, breakage/damages after checking the contents with respect to the Bidder's packing list, the Purchaser's purchase order and approved equipment drawings. The Bidder shall also check each & every equipment for any shortage/shortcoming that may eventually create difficulty at the time of installation or commissioning.

12.8 All the information and observations by the Bidder shall be furnished in the form of`INSPECTION REPORT' to the Purchaser with specific mention/suggestions which in the opinion of the Bidder should be given due consideration and immediate necessary actions, to enable the Purchaser to arrange repair or replacement well in time and avoid delays due to non-availability of equipment and parts at the time of their actual need.

12.9 The inspection for all the equipment handed over to the Bidder shall be completed within three week's period.

12.10 The protection, safety and security of the materials so taken over from the Purchaser shall be the responsibility of the Bidder, until they are handed over to the Purchaser after erection, commissioning and testing as per the terms of the Contract.

13. Storage of Equipment

13.1 The Bidder shall be responsible for the proper storage and maintenance of all materials/equipment under Bidder's custody. Bidder 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. The following procedure shall apply for the same.

13.2 The Bidder’s inspector shall check stored and installed equipment/materials to observe signs of corrosion, damage to protective coating to parts, open ends in pipes, vessels and equipment, insulation resistance of electrical equipment etc. The Bidder shall immediately arrange a coat of protective painting whenever required. A record of all observations made on equipment, defects noticed shall be promptly communicated to the Purchaser and Purchaser's advice taken regarding the repairs/rectification. The Bidder shall there upon carry out such repairs/ rectification at Bidder’s own cost. In case the Bidder is not competent to carry out such repairs/ rectification, the Purchaser reserves the right to get this done by other competent agencies at the Bidder's responsibility and risk and the entire cost for the same shall be recovered from the Bidder's bills.

13.3 The Bidder's inspector shall also inspect and provide lubrication to the assembled equipment. The shafts of such equipment shall be periodically rotated to prevent rusting as well as to check freeness of the same.

13.4 The Inspector shall check for any signs of moisture or rusting in any equipment.

13.5 If the commissioning of equipment is delayed after installation of the equipment, the Bidder shall carry out all protective measures suggested by the Purchaser during such period.

13.6 Adequate security measures shall be taken by the Bidder to prevent theft and loss of materials handed over to the Bidder by the Purchaser. The Bidder shall carry out periodical inventory checks of the materials received, stored and installed by the Bidder and any loss noticed shall be immediately reported to he Purchaser. The Bidder shall maintain a proper record of these inventories. The Bidder should not sell, assign, mortgage, hypothecate or remove equipment or materials which have been installed or which may be necessary for completion of the work without the written consent of the Purchaser.

13.7 Suitable grease recommended for protection of surfaces against rusting (refined from petroleum oil with lanolin minimum (70 ^{0}C) and water in traces) shall be applied over all equipment as required once in every six months.

13.8 All equipment shall be stored inside a closed shed or in the open depending upon whether they are of indoor or outdoor design. The space heaters where provided into the electrical equipment shall be kept connected with power supply irrespective of their type of storage. Where space heaters are not provided adequate heating with bulb is recommended. For transformers heating of oil shall be done by giving 440 V supply and short-circuiting the LT terminals. Frequent checks on insulation resistance are essential for all electrical equipment and record of the inspection reports and mugger readings shall be maintained equipment wise. Such records shall be presented to the Purchaser whenever demanded.

13.9 All the necessary items/goods required for the Bidder as described above shall arrange protection and such cost shall be included in the Contract price.

13.10 If material/ Goods were found damaged during inspection, material should be replaced on TO & FRO basis including Freight and other charges. Material are consider as free replacement.

14 Approvals

14.1 The Bidder 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.

14.2 The Bidder will furnish all the necessary details, drawings, and submission of application and proofreads to the Purchaser for verification/ signature. The Bidder on behalf of the Purchaser shall submit the necessary application duly filled-in, together with the prescribed fees to the appropriate authorities. However all the actual statutory prescribed fees paid by the Bidder shall be reimbursed by the Purchaser upon production of the receipt/vouchers.

14.3 Wherever necessary or required, the Bidder 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.

15. Review & Co-Ordination of Erection Work

The Bidder shall depute **senior and competent personnel** to attend the site co-ordination meetings that would generally be held at **the site every month**. The Bidder shall take necessary action to implement the decisions arrived at such meetings and shall also update the erection schedule.

16. Extension of Time for Completion

Should the amount of **extra** or **additional work** of any kind or any cause of delay referred to in these conditions, or exceptional adverse climatic conditions, or other special circumstances of any kind whatsoever which may occur, other than through a default of the Bidder, be such as fairly to entitle the Bidder to an extension of time for the completion of the works, the Purchaser shall determine the amount of such extension and shall notify the Bidder accordingly. Provided that the Purchaser is not bound to take into account any extra or additional work or other special circumstances unless the Bidder has within **twenty eight days** after such work has been commenced, or such circumstances have arisen, or as soon thereafter as is practicable, submitted to the Purchaser full and detailed particulars of any **extension of time** to which he may consider himself entitled in order that such submission may be investigated at the time.

17 List of Drawings required for Submission

Table1

Sr.no	Drawings
1	Equipment drawings for fabricated & non fabricated items.
2	Equipment layout for production and service blocks.
3	Flow diagrams for PROCESS and various services.
4	Service piping layouts in production and service blocks.
5	Piping & ducting layout in production blocks, WHEREVER REQUIRED.
6	Electrical cable & instrument, conduit/ cable tray layout.
7	Standard Installation Drawings for Equipment.
8	Automation SCADA networking drawings, Cabling drawings etc.
9	Automation logic write-up along with logical flow network.
10	Other miscellaneous drawings as required for erection work.

SECTION IV – PART III
SPECIAL CONDITIONS OF CONTRACT FOR MECHANICAL WORK

CONTENTS

1. Scope

1.1 General installation i.e. positioning and installing all the production, miscellaneous and service equipment as per approved layout drawings and as per the contract.

1.2 Supply and installation of structural platforms and tables cross over etc.

1.3 Supply and installation of all service and product piping including ancillary items.

1.4 Insulation and cladding of piping, equipment including supply of materials.

1.5 Interconnections of services and Electrical with equipment.

1.6 Guide line for expansion work.

1.7 Clean up of work site.

1.8 Supply of all cleaning chemicals and lubricants.

Testing, commissioning and start-up.

1.10 Painting including supply of paints as approved by the Purchaser.

1.11 Training of personnel.

1.12 Detailed specifications are given in the subsequent clauses.

1.13 **SCOPE:** The bidder's scope shall be to design, engineering, manufacturing, approval, testing, inspection, packing and supply of equipment, components, accessories & spares at site in accordance with the plans, procedures, specifications, drawings, codes & any other documents as specified by the purchaser. Successful Commissioning of equipment at site is in bidder's scope. Any Item(s) not specifically mentioned/listed but are necessary for completion & meeting satisfactory performance as per guaranteed parameters shall be deemed to be part of Scope of Supply of the bidder & shall be supplied by the bidder without any extra cost to bidder. F.O.R. destination, inclusive of Packing, Forwarding and Freight. The price quoted shall remain firm for complete duration of the order & shall not be subject to any escalation what so ever at any time thereafter. The Billing break-up has to be submitted by the bidder during order finalization. Price agreed vide this PO shall be valid for a period of 18 months from the date of the PO.

2 General Installation

2.1 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, de-crating and placing on the foundation wherever required. The Purchaser shall arrange all the civil foundations as per the manufacturer/Bidder's drawings. The Bidder 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 Bidder shall be responsible for obtaining correct reference lines for the purpose of fixing the alignment of various equipments from master benchmarks provided. Tolerances shall be as specified in equipment manufacturer's drawings or as stipulated by the Purchaser's Engineer. No equipment shall be permanently bolted down to foundations or structure until the Bidder/Supplier has checked the alignment and witnessed by the Purchaser. The Bidder/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 Bidder/Supplier shall supply all the necessary foundation/anchor bolts and bedplates if required without extra cost if these have not been provided with main equipment.

- The Bidder/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 Bidder/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 Purchaser. The Bidder/Supplier shall be paid no additional amount for the above.

2.2 Structural Platforms and Tables

- Structural platforms shall be required to provide access for various equipment. Tables shall be required for handling products. These platforms and tables shall be fabricated keeping stability and other functional as well as aesthetic requirements into consideration as approved by the Purchaser. The payment shall be made on the basis of the actual weight executed and the unit rates agreed upon or as per provisions made in the contract for such items.

3.0 Service Piping Installation

3.1 General Guidelines

- All piping systems shall comply with the **latest editions as applicable.**

3.2 Scope of Supply

3.2.1 The Bidder shall supply all piping materials like pipes, fittings, flanges, measuring instruments and all other items as shown in the P&I diagram/specifications and schedule of quantities. All the pipes & fittings and insulation material etc. should be of class and make as approved by the Purchaser. The Bidder, for the class and make of all materials, must obtain prior approval of the Purchaser. The Bidder should furnish the details of makes selected by him, in the pro forma given in Table 5.

3.3 Scope of Piping Erection

3.3.1 The scope of erection for piping, includes all system covered in the flow diagrams and specifications. The Bidder's work commences/ terminates at the pipe connections with valves or flanges as specified in flow diagrams/ battery limits.

3.3.2 The Bidder shall also install necessary piping and any specialties furnished with or for equipment such as relief valves, built-in-bypass, primary elements for flow measurements, control valves and on-line metering equipment.

3.3.3 The Bidder shall perform necessary internal machining of pipes for installing orifices, flow nozzles, control valves etc. The Bidder shall install all pipes, valves and specialties being procured from other sources.

3.4 Testing of Piping

3.4.1 The Bidder shall test all piping systems including valves and specialties and instruments as per procedure mentioned in Table 4.

3.4.2 All piping shall be internally cleaned and flushed by the Bidder after erection in a manner suited to the service and as directed by the Purchaser.

3.4.3 For hydrostatic testing and water flushing, the Bidder shall furnish necessary pumps, equipment, instruments and piping etc.

3.5 Other Guidelines

3.5.1 Colour code shall be used to identify pipe material. The Bidder shall be able to identify on request all random piping prior to field fabrication.

3.5.2 The Bidder shall be responsible for the quality of welding done by them and shall conduct tests to determine the suitability of the welding procedure by him.

3.5.3 All piping supports, guides, anchors, hangers, rollers with structural framework shall be supplied and erected by the Bidder. The kinds of pipe supports like CI clamps, wooden saddles, roller supports and support framework shall be as per the design approved by the Purchaser prior to taking up the work.

3.5.4 All piping shall be suspended, guided and anchored with due regard to general requirements and to avoid interference with other pipes, hangers, electrical conduits and their supports, structural members and equipment and to accommodate insulation and conform to buildings structural limitations. It is the responsibility to the piping Bidder to avoid all interference while locating hangers and supports.

3.5.5 Anchors and/or guides for pipelines or for other purposes shall be furnished, when specified, for holding the pipeline in position for alignment. Hangers shall be designed fabricated and assembled in such a manner that any movement of the support pipes cannot disengage them.

3.5.6 All piping shall be wire brushed and purged with air blast to remove all rust, mill scale from inner surface. The method of cleaning shall be such that no material is left on the inner or on outer surfaces, which will affect the serviceability of the pipes.

3.5.7 Effective precautions such as capping and sealing shall be taken to protect all pipe ends against ingress of dirt and damage during transit or storage. The outside of the

steel pipes (black) shall be painted with two coats of red oxide paint/heat resistant paint or as directed by the Purchaser.

3.5.8 All SHE standards set by purchaser must be followed strictly during installation and commissioning of entire plant equipments

3.5.9 All Liability arising due to accident will be born by bidder.

4 Special Instructions and Specifications

4.1 Steam Piping

4.1.1 Steam piping work can be classified into two categories:

4.1.1.1 High-pressure steam piping when the working pressure of steam is more than 1.0 kg/cm2 (15 psi).

4.1.1.2 Low-pressure steam piping when the working pressure of steam is up to 1.0 kg/cm2 (15 psi).

4.1.2 All the pipes and fittings used for high pressure steam piping work should conform to IBR and they should be IBR certified and also to be identified with number and mark showing that they are tested by the Boiler Inspector and supported with duly authentic certificates to this effect. ALL HIGH PRESSURE STEAM PIPES SHALL BE SEAMLESS TYPE, SCHEDULE 40.

4.1.3 The high pressure steam piping after installation should be hydraulically tested in presence of the Boiler Inspector for his approval.

4.1.4 The high-pressure steam piping work should also include fabrication and installation of pressure reducing stations strictly conforming to IBR.

4.2 Other Piping

4.2.1 ALL THE PIPING FOR RO, SOFT AND RAW WATER, H.P. AND L.P. STEAM, AIR AND FURNACE OIL/ LSHS PIPING SHALL GENERALLY BE OF WELDED CONSTRUCTION. Whenever welding is done for pipes of smaller size special care should be exercised to avoid clogging of flow area with the welding material.

5 Insulation of Piping and Equipment

5.1 Hot Insulation of Steam, Condensate & Hot Water and Pipe Lines

5.1.1 All the steam and hot water and pipelines shall be insulated with mineral wool or equivalent of specified thickness. The insulation shall be carried out in the following manner and should be supplied in the form of properly required sizes.

5.1.2 Clean the surfaces to be insulated. Apply a coat of heat resistant primer and fix glass wool/mineral wool of specified thickness, tightly to the pipes, butting all joints and tie with lacing wire.

5.1.3 It should then be covered with GI wire netting of 20 mm x 22 SWG.

5.1.4 In case the insulation does not have the desired insulation properties, the entire insulation will have to be redone at the Bidder's cost to give the desired results.

5.1.5 In case of condensate return piping all the steps mentioned above shall be executed except that thickness of the insulation shall be 25 mm.

5.2 Aluminium

5.2.1 The chilled water, glycol, ammonia, water, steam & hot water lines after insulations may be covered by aluminium.

5.2.2 Aluminium cladding will be done with 22 gauge aluminium sheet with proper grooves and overlaps and screwed in position with 12 mm self tapping parker screws.

6 Interconnections of Services

6.1 The Bidder shall lay service piping and provide connections with the equipment complying strictly with the equipment manufacturers' instructions.

6.2 The Bidder shall also carry out all the interconnecting service piping with the various items of plant/system. The work shall be complete with capillary piping if required and connections with instruments and controls supplied with the equipment.

6.3 The Bidder shall also carry out electrical connections for equipment with the control panels including equipment lighting as per the wiring diagrams of the equipment Bidders. Connection shall be made for small electrically operated devices on equipment installed as accessories to, or assembled with equipment. Connections regarding instruments, float switches, limit switches, pressure switches, thermostats and other miscellaneous equipment shall be done as per manufacturers' drawings & instructions.

7 Guidelines for Expansion Work

7.1 Clean Up of Works Site

7.1.1 All soils, filth or other matters of an 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 Bidder from the site of work for proper disposal.

7.1.2 The Bidder 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 Bidder 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.

7.1.3 If the Bidder 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 Bidder. Before

completion of the work, the Bidder 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 and may be used by the Bidder on payment of standard charges to the Purchaser and with prior approval of the Purchaser. At the completion of his work and before final payment, the Bidder shall remove and shall restore the site to neat workman like conditions at his cost.

8 Cleaning Chemicals and Lubricants

8.1 The necessary quantities of cleaning chemicals, lubricants etc., required for the installation, commissioning, testing and start-up of all the equipment till handing over are to be supplied the Bidder and nothing extra would be paid for these.

9 Testing, Commissioning and Start-up

9.1 The Bidder shall operate, maintain and give satisfactory trial run of the plant, for the design product satisfactorily for a minimum period of 30 days on continuous basis or as mutually agreed by Bidder/purchaser/Purchaser of the plant at the rated output. The Bidder should carry out all rectification of damages/defects and routine troubleshooting during commissioning with the help of purchaser's staff.

9.2 During this period, Bidder shall incorporate/execute necessary minor modifications during the trial period for maximizing operational efficiency. The Bidder should also execute minor modifications as may be suggested by the manufacturer/Purchaser, if required. The Bidder shall suggest recommended log sheet proofread for recording necessary operating data and pass it on to the Purchaser in proof of satisfactory rated output and performance of the equipment/plant.

9.3 The commissioning shall also include, for all the equipments, the following:

9.3.1 Field disassembly and assembly

9.3.2 Clean out of lubrication system including chemical cleaning wherever required.

9.3.3 Circulation of lubricant to check flow.

9.3.4 Clean out and check out of all the service lines.

9.3.5 Check out and commissioning of instruments, equipment and plants, filtering of transformer and other oils so that if deteriorated, they shall attain the required properties/standards, specified tests in this regard must be carried out by approved authorities and their satisfactory reports submitted to the Purchaser before start-up.

9.3.6 Recharging or make-up filling of lubricant oil up to the desired level in the lubrication system of individual machine.

9.3.7 Operation in empty condition to check general operation details wherever required and wherever possible.

9.3.8 Closed loop dynamic testing with water/product wherever required.

9.3.9 Operation under load and gradual load increase to attain maximum rated output.

10. Trouble shooting during the trial period

10.1 The Bidder 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.

10.2 After conducting testing, in case particular equipment is not working properly or not giving rated output the Bidder will furnish a detailed report to the Purchaser stating therein the detailed account on the performance of the equipment with possible reasons for improper or not working of the same.

10.3 The Purchaser after receipt of report from the Bidder would take up the matter with the manufacturers and if required would invite the representative of original manufacturers. In case the Purchaser considers that the non-performance of equipment is only due to inexperience of the Bidder, then the charges incurred for the manufacturer's representative visit would be debited to the Bidder's account.

10.4 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 Bidder for start-up help, assist and guide the Bidder during commissioning in the following cases:

10.4.1 The Bidder has no previous experience of commissioning and start-up of the similar equipment.

10.4.2 The Purchaser is of the opinion that the Bidder is not capable to commission and start-up of certain specific equipment.

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

10.6 After satisfactory commissioning and start-up the Bidder shall keep his representatives under whose supervision the Purchaser's staff shall be operating and maintaining the plant and equipment for a minimum period of two months. The Bidder's representatives should be present at all times during the running and operation of plant and equipment. During this period the Bidder shall ensure proper working of complete plant and equipment and attend any works required to be done and shall also take complete responsibility for proper operation and maintenance of the complete plant and equipment.

11. Painting

11.1 All the equipment/ machineries like motors, pumps, switch boards, starters, junction boxes, isolators, storage tanks, supporting structures, pipe supports and MS/ GI pipes

and all exposed and visible iron parts included in the scope of erection/ commissioning shall be given double coat of paint of approved shade over a double coat of anticorrosive primer wherever necessary irrespective of the condition of original paint of equipment/ machineries/ structures/ supports. Surfaces wherever required must be properly cleaned for scale, dirt and grease prior to painting. Spray painting is preferably be used on all the equipment/ machineries and wherever practicable. Suitable and necessary cleaning/ wiping of sight/ dial glasses, other non-metallic parts, flooring, walls and other surfaces which have been spoiled by paint during painting must also be carried out by the Bidder .

11.2 Lettering and other markings, including capacity and flow direction markings, shall also be carried out by the Bidder on the tanks, pipe lines, starters, motors, isolators and wherever else necessary, as directed and as per the standard practice of installation. ISI colour codes and colour charts as mentioned in Table 3 & Table 2 must be adhered to.

11.3 Supply of all paints and all other materials required is included in the scope of supply of the Bidder under this contract/order.

12. Training of Personnel

12.1 The Bidder for operating the plant as may be deputed by the Purchaser shall train necessary staff. The personnel will be associated for the training during the installation; testing, commissioning and start-up period and the training tenure shall be extended for a minimum period of one month from the date of commissioning and start-up.

13. Code of Practice for Painting Service Pipe Lines

13.1 On Non-insulated Pipe Line & Insulated Pipeline without Aluminium Cladding

13.1.1 Ground colour to be applied throughout the length of the pipeline.

13.1.2 Colour bands to be applied near every valve and branch connection as well as in every room near the entry.

13.1.3 The 1st band should be 4" wide and the second band should be 1" wide.

13.1.4 On the 1st band a white arrow to be put to indicate the direction of flow.

13.1.5 The arrows should be put on the bottom of the pipelines so that the same are visible from below in case of horizontal bank of pipes and on sides in case of vertical bank of pipes.

13.1.6 The valves should be painted with the same colour as the ground colour of the pipeline.

13.2 On Insulated Pipeline with Aluminium Cladding

13.2.1 Ground colour to be applied in a length of 500 mm of the pipe all round near every valve and branch connections as well as in every room near the entry. The complete length of the pipeline should not be painted.

13.2.2 Colour bands should be applied in the middle of every ground colour strip. The 1st colour band should be 4" wide and the second band should be 1" wide.

13.2.3 On the 1st band a white arrow is to be put to indicate the direction of flow of the fluid.

13.2.4 The arrows should be put on the bottom of the pipelines, so that the same are visible from below in case of horizontal bank of pipes and on sides in case of vertical bank of pipes.

13.2.5 The valves should be painted with the same colour as the ground colour.

13.2.6 The ground colours and the colours of the 1st and 2nd colour bands have been indicated on the enclosed list for the pipelines carrying various types of fluids and gases. The list also indicates the shade nos. of the colours to be used. In case the exact shade is not available, the nearest possible shade in the same colour may be selected.

13.2.7 Only synthetic enamel paint should be used for the painting and band markings on the pipelines and it should be ensured that the finish should be glossy.

13.2.8 Where no colour bands have been recommended, only the ground colour is to be applied as per the above procedure. If only one colour band is recommended the same should be 4" wide and applied on the ground colour. In case of 2 nos. colour bands, the 1st band should be 4" wide and second band 1" wide and should be applied on the ground colour.

13.2.9 To avoid mixing of colours, it is recommended to apply the bands only after the ground colour paint is dry and subsequently to apply the arrow only after the 1st band paint is dry.

Table 1

Painting of Equipment & Structural Work

SN	Item	Painting Shade
1	All Storage tanks with outer MS	Bright yellow Shade No 632 of ISI
2	All M.S. platforms/pipe supports/ pipe bridges and any other structures	Dark Admiral grey shade No.632 of ISI
3	Water Pumps & Motor	Original colour
4	LT distribution switchboards	Dark admiral grey

Table 2

Colour Code For Pipelines as per BIS 2379-1963

SN	Services	Ground Colour	First Band	Second Band
1	Cold Water	Sea Green 217	French Blue 166	-
2	Boiler Feed Water		Parrot Green	-
3	Condensate		Light Brown 410	-
4	Hot Water		Light Brown 410	-
5	Drinking Water		French Blue 166	Signal Red 37
6	Treated Water		Light Orange 557	-
7	Untreated Water		White	-
9	Compressed Air	Sky Blue 101		
10	Vacuum		Black	
11	Steam	Silver Grey 628	Original colour	
12	Diesel	Light Brown 410	Brilliant 221	
13	Lubricating Oil		Light Grey 631	
14	Drainage	Black		
15	Fire Hydrant	PO Red		

Table 3

Testing Pressures for Various Pipelines

Sr No	Name	Test Pressure kg/cm2	Test medium	Duration of Test (Hour)	Allowable pressure Drop (kg/cm2)
1	H.P.Steam pipe lines	27	Water	1/2	0
2	L.P.Steam pipe lines	8	Water	1/2	0
3	Water pipe lines1	8	Water	1/2	0
5	MS pipes for dairy	6	Water	1/2	0
6	Air	12	Air	8	0.1

SECTION – V
TECHNICAL SPECIFICATIONS

SECTION- V
SUB SECTION – 1
INTRODUCTION

1. BACKGROUND:

1.1 PREAMBLE:

Kaira District Co-operative Milk Producers' Union Limited., Anand (Amul Dairy) is a district level Union which procures, process and market Milk and Milk products from milk producer members organized through village co-operative societies within the district of Kaira (Kheda and Anand). It aims to provide assured market, better returns to the farmers and good quality of milk, milk products and food products to consumers.

Amul Dairy is presently having one of the largest Composite Dairy complex in India at Anand with facilities for processing of 2 million LPD of milk to produce various Dairy products viz. liquid milk in pouches, different types of Milk Powders, Infant food, Table Butter, Ghee, Ice Cream, Energy drinks, Curd, Flavored milk & Butter milk etc.

About the Organization

Date of Registration	**:**	14Th December 1946
Registered Name & Address	**:**	Kaira District Co-operative Milk Producers' Union Ltd., Anand-388001
Brand Name	**:**	Amul
Area of Milk Collection	**:**	Kaira District (Anand & Kheda Districts)
Number of Producer Members	**:**	6, 50, 000
Number of Village Societies	**:**	1200
Total Milk Handling Capacity	**:**	4.5 Million Liters per Day.
Daily Average Milk Collection	**:**	1.93 Million Liters per Day (Year 2015-2016)

1.2 Manufacturing Units

1.2.1 Main Dairy Plant, Anand

The plant manufactures butter, clarified fat (ghee), liquid milk, Milk Powder(s) viz. Skimmed Milk Powder, Whole Milk Powder, Dairy Whitener, Infant Milk Food, Whey Powder, Packaged Curd, Butter Milk , and Sterilized Flavored Milk apart from Processed Liquid Milk. In order to facilitate efficient and effective movement of milk from producers' end, satellite dairies known as chilling centers were created. The two chilling centers are: Kapadwanj Chilling Centre and Balasinor Chilling Centre.

1.2.2 The Kheda Satellite Dairy, Mahemdabad

The Kheda Satellite Dairy plant is 42 km away from Anand in the northern part of the district. The state-of-the-art plant with modern infrastructure and technology can produce various types of Cheese, Paneer, and a Whey Powder Plant almost nearing completion.

1.2.3 Food Complex , Mogar

The Food Complex at Mogar, a plant 8 km away from Anand has facilities to manufacture Malted Milk Foods, Chocolate, Bread Spread (Fat Spread), Ready to eat Extruded food and Bakery products.

1.2.4 Cattle Feed Factory , Kanjari

This plant came up in 1964 around 10 Kms away from Anand, can produce about 1100 MT/day compounded balanced cattle feed. This plant has helped a long way in animal feed management, and sustainable milk production.

1.2.5 Amul Satellite Dairy, Pune

To cater the liquid milk requirements in and around Pune, a plant at Rajgurunagar having processing capacity of 150KL per day was purchased by Amul Dairy in the year 2003. Products handled in this plant are Liquid milk, Butter milk and Dahi.

1.2.6 Amul Milk Packing Plants, Kolkata

In order to cater liquid milk requirements of Kolkata, three dairies in Kolkata pack about 8 LLPD, 25 Tons of Dahi per day, 15000 liters each of Ice Cream and Sterilized Flavored Milk for Amul Dairy. Anand pattern is being implemented for procurement of milk from local farmers

1.2.7 Amul Milk Packing Plants, Mumbai

In order to cater liquid milk requirements of Mumbai, a installed new 6 LLPD dairy plant and put in operation in 2013 having processing capacity of 6 LLPD expandable to 10 LLPD. Products handled in this plant are Liquid milk, Butter milk, Dahi and Ice cream.

1.2.8 Amul Research and Development Association ARDA, Ode

To provide quality semen and to carry out artificial insemination at village level, with headquarters at Anand, semen station at Ode was established in 1980which is 15 Kms away from Anand. The Centre has all facilities to maintain bulls, semen collection, processing, packing and storage and for distribution to member producers.

1.2.9 Sikkim Dairy Products Limited, Gangtok

Amul Dairy in collaboration with State Government of Sikkim has initiated collection of milk from local farmers to manufacture specialty cheeses. The operations of this dairy has been taken over by Amul in order to improve the economic conditions and livelihood of local farmers having one or two cows deliver milk to the dairy.

1.2.10 Amul Feed Plant, Kapadivav

This Feed plant came up in 2015 around 60 Kms away from Anand, can produce about 1000 MT/day expandable to 2000 MT/day balanced cattle feed. This plant has helped a long way in animal feed management, and sustainable milk production.

SECTION – V
SUB SECTION – 2
INSTRUCTIONS TO BIDDERS

2. Instructions to Bidders

2.1. This Sub - Section of the tender defines the way that bidders are required to structure the presentation of the technical section of their bids.

2.2. All technical data required by the tender is to be provided in the format given in this Sub - Section. If no format is given for any specific item the bidder may submit bid in their format.

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

Bid Structure of Technical Section.

2.4. The technical section of the bid is to be structured in the same order as Tender Document. Each statement is to be numbered with the same Sub-section and paragraph number as in the Tender Document. Every page of the technical section of the bid is to be numbered. Section number is also indicated in every page. The general structure, therefore, is to be as follows:

Sub Section	Subject
1	Introduction
2	Instruction to Bidders
3	Design Basis
4	Responsibilities
5	Project Management
6	Scope of Supply and Technical Specification (Tender Packages)
7	Battery Limits
8	Deviations from Technical Requirements
9	Optional & Additional Items
10	Drawings and Documentation
11	Criteria for Technical Evaluation of Bid
12	Process Performance and Consumption Guarantee
13	Requirement for Bidder Meeting

2.5. The bidder is to cover each requirement of the Tender Document by statements, technical data and descriptive material and, in particular to detail the following:

SUB-SECTION: 1: Introduction

The bidder is to describe his technical proposal in details, stating the processes and systems, which he has, applies 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 operating cost or improve product quality. The "Preamble" should commence at the start of the process and work logically through the process. Any such highlights should be cross-referenced with the Bid sub-Section and paragraph number to which they apply.

SUB-SECTION: 3: Basis of Design

The bidder is required to follow the Basic of Design in the tender, and indicate clearly where additional processes or alternative processes of equipment are considered to be necessary or desirable to achieve optimum plant operation efficiency, optimum product quality within the standards specified, and optimum plant operation convenience. Under the utilities sections quantified the peak and daily loads of each utility and cross-reference this two service load histogram data to be provided with this bid. All calculation used to determine the capacity of equipment / system to be attached along with histogram.

SUB-SECTION: 4: Responsibilities

Responsibilities of the Bidder
The bidder is required to specifically state his acceptance of non-acceptance of each clause in this sub-section. Non-acceptance shall be deemed a deviation from the tender and should be mentioned in deviations, Sub - Section 8.
Responsibilities of Client
The bidder is required to state here any additional responsibilities that he consider are to be borne by Client besides those described in the tender.

SUB-SECTION: 5: Project Management

Time Schedule

The bidder is to state in this subsection the proposed programme of implementation from receipt of order to commencement of product trials, to be provided as per Sub - Section 10.
Management Team
The bidder is to detail the make-up of the management team in terms of designation, accordance with this Sub - Section of the tender. Also to quantify the support that will be given by foreign collaborators, with designation and man

months of attendance in India and at site. This bidder is to ensure that the following Sub - Sections are fully detained and quantify the duration and manpower supplied to each.

- Commissioning
- Product trials
- Training

SUB-SECTION: 6: **Scope of Supply & Tech Specification (Tender Package)**

The bidder is required to follow the sequence of the tender Document and to make a statement on each paragraph. Do not leave any item without a clarify statement.

SUB-SECTION: 7: Battery Limits

Battery limits for the plant are mentioned in this sub-Section.

SUB-SECTION: 8: Deviations

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

SUB-SECTION: 9: Optional Item

Items that the bidder includes in this Sub - Section that are considered by evaluation team to be essential to the satisfactory operation of the plant, shall be included in the commercial evaluation of the bid.

SUB-SECTION: 10: Drawing, Data & Doc.

The list of drawings and technical documents required for technical evaluation is included in Sub - Section 10. These include a number of data sheet formats to be completed by the bidder. The completion of this format is mandatory, and failure to comply will make the bid liable to be deemed non-responsive.

SECTION – V
SUB SECTION – 3
DESIGN BASIS

PACK 1

Butter Tub Packing Machine, Capacity: 200 Tubs/min. (designed for 200g) for Amul Dairy, Anand. Qty. -1 Set.

3.1 Design Basis:

3.1.1 Description:

The Table Butter(Indian) manufactured having temperature of 16-18 °C and collected in butter silo shall be fed into the hopper of dosing unit of the machine through existing positive pump installed at outlet of butter silo. The dosing unit shall dispense the butter into preformed rectangular tub of 50 gm, 200 gm and 500 gm.

3.1.2 Basic Machine:

The new proposed fully automatic, energy efficient preformed tub filling and closing machine shall be designed to pack table butter in 50gm, 200gm and 500gm pack size.

PLC based fully automated Packing Machine shall be considered.

The machine shall consist of Dosing unit with hopper, Tub Station, Foil and Lid stations, Sealing station, press station for lid, discharge conveyor and automatic case packer(optional).

Dosing unit shall have servo motor driven volumetric piston filler. Parts in contact with product shall be made of stainless steel or delrin 150, all approved for use in food industry.

Provision shall be made for automatic chemical cleaning of the filler without dismantling it.

Case packer shall be designed to fill 50g, 200g and 500g tubs into the cases.

PACK 2

Cheese Blister Packing Machine, Capacity: 700 Tubs/min. for Kheda Satellite Dairy, Khatraj. Qty. - 1 Set.

3.2 Design Basis:

3.2.1 Description:

The liquid cheese coming from the cooking unit in batches or continuously, shall be poured into the hopper of the dosing unit and dispensed into the formed cups.

3.2.2 Basic Machine:

The new proposed fully automatic, energy efficient Form, Fill and Seal blister packing machine shall be designed to pack cheese spread in 10gm cup.

PLC based fully automated Packing Machine shall be considered.

The machine shall consist of base sheet unwinder, pre-heater, thermoforming station, corner punching station, dosing unit, lid sheet unwinder, sealing station, punching station and case packer.

Provision shall be made for bottom embossing coding.

Provision shall be made for automatic chemical cleaning of the dosing unit without dismantling it.

Pick &place system incl. walking beam.

PACK 3

Design, Supply, Installation and Commissioning of Ghee Plant Capacity: 2 Ton/Hour at Amul Dairy, Anand. Qty. - 1 Set.

3.3 Design Basis:

PRODUCT :- Amul Pure Ghee, Amul Premium Ghee, Amul Pure Ghee(Brown)

Usage: As a cooking ingredient / medium, Flavoring agent and in making traditional sweets.

Intended use: Product is intended for consumption by general population

Pack Size :

1. Poly film pouches : 200ml , 500 ml, 1000ml
2. Tin Containers : 500 ml, 1 litre,2 litre, 5 litre, & 15 Kg
3. Bucket : 10 kg bucket
4. Barrel : 210 litre
5. Pet jar : 200ml/500 ml/ 1 litre
6. Laminate : 48 ml pouch

Specifications Of Ghee:

TEST/ CRITERIA	AGMARK SPECIFICATIONS	FSSAI SPECIFICATIONS
Fat %	Min. 99.70	----
Free fatty acid content as % oleic acid	Max. 1.4	Max. 3.0
Moisture %	Max 0.3	Max.0.5
Organoleptic evaluation	No abnormality- free from any foreign flavor/off flavor	----
Butyrorefractometer reading at 40 Deg C		40.0 to 43.5
Reichert Value	Min.28	Min. 24
Polenske Value	1.0 to 2.0	----
Boudine Test	Negative	-----

Specifications for Amul Pure Ghee (Brown)

Colour & Appearance	: Brown with Viscous in nature
Texture	: Granular in Solid Phase
Flavour and Taste	: Cooked with pleasant
% Moisture	: Max 0.3
% FFA	: Max. 1.4
% Peroxide Value	: Max 0.55
Baudouin Test	: Negative
R.M value	: Min.28
Polenske Value	: 1.0 to 2.0
B.R Reading at 40^0C	: 40.0 to 43.0

MANUFACTURING PROCESS :-

Unsalted white butter from Cold Store/ section

↓

transfer into White butter to butter cutting M/C

↓

transfer into melting vat

↓

Heating of vat with steam to convert butter mass into liquid cutting to continuous melter

↓

storage in Settling Tank (Prestratification) for minimum 45 min.

for separation of fat from serum

↓

Serum transferred to serum tank

↓

Transfer of melted butterfat to Ghee Kettle

↓

Heating of butterfat to a temperature of 110-115 degree Celsius

OR

Heating of butterfat to a temperature of 143-155 degree Celsius for 30min(For Brown Ghee)

↓

Keep it for natural air cooling upto 85-90^{0}C

↓

Transfer of Ghee from kettle to Ghee tub through 300 mesh size filter and after clarification stored into buffer tank through triple layer 300 mesh size filter.

↓

Sampling by QC

↓

QC Ok

↓

Storage for mini 10 to 12 hours

↓

packing thorough 300 mesh size filter at temperature 38-45 deg Celsius.

Ghee Plant(Capacity : 2 Ton/Hr)

The new proposed fully automatic and energy efficient 2 Ton/Hr Ghee Plant at Kaira District co-operative Milk producers' Union Ltd (Amul Dairy , Anand) for 20 hrs operation.

The Following features shall be considered in the design.

1) The Plant shall be designed to manufacture Ghee from unsalted white butter

2) The Ghee Plant shall have Continuous Melter, Serum Separator, Ghee Cooking Kettle, Ghee Clarifier, Ghee storage tank etc..

3) Serum Separator shall be used for enhancing fat recovery during manufacturing of Ghee. Typically white butter shall be melted in a pre-stratification tank. The top fat-rich portion shall be removed and the serum from the bottom of the pre-stratification tank (which has a much higher portion of water) shall first centrifuged with Serum Separator. Centrifugal force removes moisture(heavy phase) from the fat-rich (light phase) and then the product shall transferred to Ghee boiler for Ghee manufacture. Thus, the quantity of moisture that is evaporated in Ghee manufacturing is drastically reduced which reduces manufacturing cost (reduced energy consumption, lower manpower cost). The same unit can be used later in the process again for recovering fat from pre-filtered ghee residue.

4) In the Ghee Clarifier Ghee from the settling tank shall be fed through the inlet placed at the top of Ghee clarifier. Separation takes place in a solid wall bowl where the Ghee residue, under the influence of centrifugal force, separates from Ghee and is collected in the sludge space of the bowl. The clear Ghee comes out through an outlet connection.

5) The pure fat shall collected in FAT Tank of 5KL capacity and it shall be insulated. Once adequate quantity shall ready for processing, pure molted fat shall transferred to ghee cooking kettle for processing, pure molted fat shall transferred to ghee cooking kettle for processing. There shall be 3 nos. Of ghee cooking kettle of 2 KL capacity. Ghee processing shall takes place with steam injection inside the jacket of kettle.

6) The temperature during Ghee manufacturing process shall between 112-118"C and 143-155 degree Celsius for 30min(For Brown Ghee)

7) On completion of processing of ghee batch inside kettle, it shall transfer to ghee storage tank of 3 KL capacity.This tank shall be jacketed and insulated.

8) After QC clearance, ghee shall taken to balance tank of pouch filling machine and packed in pouches.

General Procedure:

The raw material required for ghee manufacturing process is white butter blocks kept in cold store. The white butter blocks shall taken to butter cutter.

After manual removal of outer carton and packing film, the blocks shall fed to butter cutter at room temperature.

The butter cutting process results in small butter blocks which shall manually fed to butter melting vat.The butter melting vat shall 2 KL capacity with temperature sensor and level switch. Butter melting shall taking place due to provision of recirculation of hot water in the jacket of vat.

The molten butter shall transferred to intermediate storage tanks via centrifugal pump.

Serum shall partially separated in Serum Separator or pre-stratification tanks and fat shall pumped to ghee kettles via centrifugal pump.The serum shall collected in serum tank of 5KL capacity which shall vertical tank with jacketed and insulated. The serum collected shall subjected to further processing to facilitate fat recovery.

The pure fat shall collected in FAT Tank of 5KL capacity and it shall be insulated. Once adequate quantity shall ready for processing, pure molted fat shall transferred to ghee cooking kettle for processing, pure molted fat shall transferred to ghee cooking kettle for processing. There shall be 3 nos. Of ghee cooking kettle of 2 KL capacity. Ghee processing shall takes place with steam injection inside the jacket of kettle.

The temperature during this process shall between 112-118”C and 143-155 degree Celsius for 30min(For Brown Ghee)

On completion of processing of ghee batch inside kettle, it shall transfer to ghee storage tank of 3 KL capacity.This tank shall be jacketed and insulated.

After QC clearance, ghee shall taken to balance tank of pouch filling machine and packed in pouches.

LIST OF EQUIPMENT REQUIRED FOR 2 MTPH GHEE MANUFACTURING PLANT

Sr No	Equipment Description	Capacity	Quantity
1	Continuous Butter Melting Machine	2000 Kg/hr	2 No.
2	Molten Butter Transfer Pump	10,000 LPH	1 No.
3	Serum Separator	2500Kg/hr	2 No.
4	Serum Tank (jacketed)	5000 Ltrs	1 Nos.
5	Intermediate Molten Butter Storage/ Pre-stratification Tank	5000 Ltrs	3 Nos.
6	Molten Butter Transfer Pump	10000 LPH	1 No.
7	Ghee Cooking Kettle	2000 Ltrs	3 Nos.
8	Ghee Storage Tank	5,000 Ltrs	2 No.
9	Ghee Transfer Pump (5 bar pressure)	10,000 LPH	1 No.
10	Ghee Clarifier	5KLPH	1 No.
11	Inline Pressure Filter	Suitable	1 No.
12	Duplex inline strainer	Suitable	1 No.
13	Ghee Storage Tank	10,000 Ltrs	5Nos.
14	Balance tank for Cooling / Hot water Return	500 Ltrs	1 No.
15	Pump for Cooling / Hot Water Return	10000 LPH	1 No.
16	Product Piping, Fittings , Valves & Supports	Suitable	1 Lot
17	Pneumatic valve for Product	Suitable	1 Lot
18	Utility Piping , Fittings , Valves , Insulation	Suitable	1 Lot
19	Power Cables & Accessories	Suitable	1 Lot
20	Control Panel (PLC), Control Cable, Field Instruments & Accessories	Suitable	1 Lot
21	Design, Erection, Installation, Testing and commissioning		1 Lot

Final Equipment Details :

Sr No	Equipment Description	Capacity	Design Quantity	Existing Qty	Usable Qty	Final Required Quantity
1	Continuous Melters	2000 Kg/hr	2 No.	-	-	2 No.
2	Molten Butter Transfer Pump	10,000 LPH	1 No.	01	01	-
3	Serum Separator	2000Kg/hr	2 No.	-	-	2 No.
4	Serum Tank (jacked)	2500 Ltrs	1 Nos.	-	-	2 Nos.
5	Intermediate Molten Butter Storage/ Pre-stratification Tank	5000 Ltrs	3 Nos.	01	01	2 Nos.
6	Molten Butter Transfer Pump	10000 LPH	1 No.	01	--	1 No.
7	Ghee Cooking Kettle	2000 Ltrs	3 Nos.	01(2T)+1(1T)+1(0.6T)+1(0.4T)	01(2T)	2 Nos.
8	Ghee Storage Tank	5,000 Ltrs	2 No.	-	-	2 No.
9	Ghee Transfer Pump (5 bar pressure)	10,000 LPH	1 No.	-	-	1 No.
10	Ghee Clarifier	2LPH	2 No.	1(2KLPH)	1(2KLPH)	1 No.
11	Inline Pressure Filter	Suitable	1 No.	-	-	1 No.
12	Duplex inline strainer	Suitable	1 No.	-	-	1 No.
13	Ghee Storage Tank	10,000 Ltrs	5Nos.	10KL(1)+18KL(1)+3KL(4)	01(10KL)	4Nos.
14	Balance tank for Cooling / Hot water Return	500 Ltrs	1 No.	-	-	1 No.
15	Pump for Cooling / Hot Water Return	10000 LPH	1 No.	-	-	1 No.
16	Product Piping, Fittings , Valves & Supports	Suitable	1 Lot	-	-	1 Lot
17	Pneumatic valve for Product	Suitable	1 Lot	-	-	1 Lot
18	Utility Piping , Fittings , Valves , Insulation	Suitable	1 Lot	-	-	1 Lot
19	Power Cables & Accessories	Suitable	1 Lot	-	-	1 Lot
20	Control Panel (PLC), Control Cable, Field Instruments & Accessories	Suitable	1 Lot	-	-	1 Lot
21	Design, Erection, Installation, Testing and commissioning		1 Lot	-	-	1 Lot

SECTION – V
SUB SECTION – 4
RESPONSIBILITIES

4. Responsibilities

4.1. Bidder's Responsibilities

4.1.1. Developing the process design, complete engineering design and ensuring best performance of individual equipment/system, for which he shall avail the assistance of reputed specialists in their respective fields, wherever required.

4.1.2. Performance and suitability of the total system.

4.1.3. Performance tests should be carried out by the bidder in the presence of and to the satisfaction of Purchaser/Client's in-charge.

4.1.4. Execution of the project in accordance with the prevailing Indian Standards, Indian Boiler Regulations, Indian Electricity Rules, Indian Explosives Act, Indian Factories ct, Indian Pollution Act and any other Acts. Wherever Indian Standards are not available the bidder shall follow International Standards.

4.1.5. Arranging for approvals from various statutory authorities on behalf of the Client / Purchaser. The statutory fees shall be reimbursed by the Client/Purchaser on production of receipts.

4.1.6. Ensuring satisfactory performance and After-Sales service of 'Bought-Out' items included in the scope of supply.

4.1.7. First charge of oil, lubricants and consumables. "First charge" means that these items shall be replenished whenever and wherever required till the successful completion of product trials and commissioning.

4.1.8. Test kits required for establishing performance parameters.

4.1.9. Necessary manpower and tools.

4.1.10. Performance guarantees with regard to the following:

4.1.10.1.Rated performance of individual equipment and complete system(s).

4.1.10.2. Product quality standards conforming to the prevailing Standards.

4.1.10.3.Consumption of utilities for individual equipment and for the complete system.

4.1.10.4 Visual safety and operational requirement boards, indicators, markers Bidder has to submit utility consumption date in separate sheet.

4.2. Purchaser's Responsibilities

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

4.2.2. Documents on local site conditions related to climate, access and communications.

4.2.3. Temporary water and power supply at one point within the plant premises during erection. Water supply will be free of cost. However for temporary power, the bidder shall pay actual charges against supporting bills, if availed. The bidder shall have option of making arrangements for temporary power on its own.

4.2.4. Lighting and domestic wiring system and internal telephone system including the switch boards for lighting. Engineering personnel to liaison with the bidder, Project Manager and the execution team.

4.2.5. Permanent water and power supply at the time of pre-commissioning of the plant.

4.2.6. Adequate staff including operators, supervisors and engineers for product trials. However commission trials should be taken by bidders only.

4.2.7. All civil works including buildings, roads, cable trench, underground condensate piping and drainage.

4.2.8. Provision of and cost of services, row products, packaging materials & chemicals.

4.2.9. Timely provision of personnel for training.

4.2.10. Provide open storage area only and office space during erection and commissioning of project. The bider need to arrange the office structure.

4.2.11. Suitable Site fabrication yard

4.2.12. Lighting distribution system in RMG and FPG and non-plant areas.

4.2.13. Telephone and fax on chargeable basis.

4.2.14. Payment as per agreed terms and conditions.

4.2.15. Approval of drawing within 10 days from date of submission and decision within a week on any issue which will come up.

4.2.16. Project manager with team throughout the implementation.

4.2.17. Lightening protection system & protection against rain.

4.2.18. Readiness of Civil Building, clear civil fronts in all respects along with necessary utilities within agreed schedule to enable commencement of erection activities to meet the overall completion schedule.

4.2.19. Availability of required quantity of row material for the designed product to conduct the first run of product trials at the rated plant capacity.

SECTION – V
SUB SECTION – 5
PROJECT MANAGEMENT

5. Project Management

5.1. Time Schedule

5.1.1. The project execution shall be time- bound as per the mutually agreed time schedule. A competent execution team shall be deputed at site and shall be headed by a Project Engineer who shall be stationed at site and adequately experienced in Project Management of such magnitude and type. The Project Engineer shall avail of assistance from reputed experts in various fields who shall be directly responsible for satisfactory execution.

5.1.2. The project-staffing pattern shall be submitted before commencement of work and should include sufficient personnel to meet the execution time schedule.

5.2. Management Team

5.2.1. Project Manager who shall be adequately experienced in projects of similar magnitude and type shall head a competent executive team. Reputed experts in various fields who shall be responsible for satisfactory execution of the project shall assist the Project Manager. He shall be responsible for overall implementation of the project, from commencement to final take over of the plant.

5.2.2. A Project Engineer shall be appointed for day to day operation and co- ordination, and to ensure successful and satisfactory design, procurement, manufacture, inspection, erection, testing and commissioning of all the equipment/facilities/systems within the time bound schedule.

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

4.2.4. The Project Manager shall also be responsible for detailed material accounting at site and management of project materials and equipment stored at site.

5.2.5. The Purchaser will nominate a Project Manger with whom the Project Manager of the bidder shall communicate/co-ordinate.

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

5.2.7. The Project Manager shall be fully authorized to take on-spot decision with regards to:

- Modification in layout and execution programme to suit local condition.
- To purchase essential materials from local market to avoid delays.

5.3. Approval

5.3.1. Purchaser shall give approval on technical documentation within 7 working days after submission. Amendments, which are not in the original scope of work or due to changes in concept, shall be taken up by the bidder as per mutually agreed rates to be decided before execution, and shall be binding on the bidder.

5.3.2. Bidder shall obtain approval for purchase of specific makes of equipment

whose makes are not mentioned in his offer. If two or more makes of equipment are mentioned in the form of alternatives in the approved list , the bidder shall select any one of the particular make from the approved list after mutual discussions with the Purchaser.

5.4. Inspection

5.4.1. For indigenous items, the bidders shall invite Purchaser for inspection and preliminary testing. Inspection may be required at various stages of manufacture/assembly for some items. The Purchaser will arrange to complete such inspection as maybe necessary along with clearance within a reasonable time (7 days) from the date of intimation by the bidder.

5.4.2. For imported items, however, the bidder shall do the inspection at his cost and submit the necessary test certificate wherever possible.

5.5. Site Work and Installation

5.5.1. Protection of electronic equipment. It is the responsibility of the bidder to ensure that all electronic equipment and control system shall be fully protected against hostile environment, humidity, heat and dust that will be encountered during storage and installation.

5.5.2. Temporary power supplies. Power supply at site is normally very stable, but the bidder is responsible to ensure that delicate electronic equipment used during construction, such as welding machine, testing devices etc. are protected against damage from mains supply. In the event of a major power failure in the system, it shall be the responsibility of the bidder to hire a diesel generator if this proves to be necessary.

5.6. Commissioning

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

5.7. Product Trial and Performance Guarantee

5.7.1. On completion of the Commissioning period, the plant will be operated at full capacity to the satisfaction of the Project Authority for a period of 30 days on the designed product.

5.7.2. If shut down occurs due to External Force Majeure reasons after 16 hours of operation in any day, this shall be considered as a full day of testing. If at less than 16 hours of operation, the trials shall be continued for an additional full day.

5.7.3. Performance Guarantee: Performance and services consumption
Guarantees and the relevant penalties for not meeting the rated capacities and efficiencies are covered in the tender.

5.8. Training

5.8.1. Training pertaining to the use of the various process equipment in the plant shall form an important component of Project Management.

5.8.2. Training shall be undertaken by the bidder for a period of six weeks during which the contractor should guide and train the staff of the client in operating the plant equipment to achieve the optimum plant efficiency and product quality.

5.8.3. Training should commence during the commissioning period and include:

5.8.3.1. Familiarization with major equipment like Mixire , Refiner, Conch, Storage Tanks etc including the operation of the computer based auto batch weigher.

5.8.3.2. Procedure for attaining the rated output and optimum product quality.

5.8.3.3. Familiarization with the basic principles of Electronic/Electrical control systems, if any including fault finding.

5.8.3.4. Familiarization with start-up procedures, regular maintenance and operational procedures including dismantling of machine parts, replacement of spares/ components, preventive maintenance etc.

5.8.3.5. Condition monitoring of equipments.

5.8.4. Training shall be given to all the personnel required to operate the plant, and their immediate Supervisors /Engineers.

5.8.5. The training schedule should be proposed by the bidder together with the content of training programme, their duration etc.

5.9. Stand By After Commissioning

5.9.1. Once the commissioning and warranty runs are over, the bidder shall provide to the plant standby technical supervisory support as follows

5.9.1.1. For one month after warranty runs in which further training of the Purchaser/Client's operating staff if required shall be done and equipment/system still needing finer adjustment/changes shall be carried out.

5.9.1.2. For a week each after 4 months, 8 months and 1 year from warranty runs, to have discussions with plant staff, to review the correctness of operations & maintenance procedures.

5.9.2. These visits of the Bidder other than those covered under guarantee clause, which shall be undertaken whenever required separately.

5.10. Service Cover

5.10.1. In order to ensure that the efficiency of the plant is maintained at an optimum level, a proposal to offer a service coverage for a period of two years from the date of plant acceptance shall be given by the bidder.The objectives of this coverage shall be:-

5.10.2 To arrange for regular service visits by the bidder of these equipments to inspect, service and carry out repairs if necessary and whenever there is a breakdown/failure of the system. The frequency and duration of the visits may be clearly specified.

SECTION – V
SUB SECTION – 6
TECHNICAL SPECIFICATIONS

PACK 1

Design, Supply, Installation and Commissioning of Butter Tub Packing Machine, Capacity: 200 Tubs/min. (designed for 200g) at Amul Dairy, Anand. Qty. -1 Set.

6.1 Butter Tub Packing Machine, Capacity: 200 Tubs/min. (designed for 200g)

6.1.1 Technical Specification

FULLY AUTOMATIC TUB FILLING AND CLOSING MACHINE.

Quantity:	1 Set
Type of Machine:	Intermittently operating in-line Table Butter (Indian) Tub Filler, modular design.
Capacity:	Up to 50 strokes/minute with the double pitch plate, equal to max. 200 tubs/min. for volume upto 500g.
Product:	- Not aerated Table Butter. - Filling Temperature: 16-18 °C
Product feed:	Butter shall be fed in Hopper of the machine though pump. Necessary signal to be provided for pump control according to level in hopper. (pump not in scope of supply).
Filling Weight:	50 g, 200 g and 500 g.
Filling Accuracy:	Standard deviation +/- 0.15%.
Number of Lanes:	Four
Dosing Unit:	Servo motor driven volumetric piston filler, CIPable, Parts in contact with product shall be made of SS316L or Derlin 150, all approved for use in food industry. Tub lifting during filling process.
CIP Cleaning:	Complete automatic chemical cleaning of the filler, without

dismantling it. CIP system shall include movable tub of adequate volume, butterfly valves and pumps. CIP program shall be controlled from operator panel.

Cell Plates: Cell plate chain made of special stainless steel material.

Tub Shape: Rectangular-
Tub dimensions:
200 gm : Refer drawing 1,2 & 3.
50 gm and 500gm : To be decided.

Tub Station: Vertical magazines, spiral type denesting with air assisted. The tubs have to be trouble free stackable and denestable.

Tub Closure: By sealing membrane and additional snap-on lid.

Tub Feeding: Manual loading into a 4 lanes - magazine.

Sealing Station: Pneumatically operated.

Snap on Lids: Dimensions according to tub sizes, to be trouble free stackable and denestable from vertical magazines.

Snap on Lid Feeding: Manual loading into a 4 lanes - magazine

Press Station: To press snap on lids onto tub rim.

Tub Discharge: On horizontal conveyor belt. 3 meter length.

Coding: Coding shall be done with one ink-jet printer.(printer not in scope of supply). Details like make of printer, head mounting arrangement etc. shall be provided before start of designing work.

Sample Material: Before start of designing work for size depending parts, the definite detailed dimensions of tubs, sealing membranes and lids shall be made available.

Material for test runs: For size adjustments and test runs before delivery of the machine, we shall provide tubs and lids per size.

Efficiency: 100 % of the rated output.

Machine Control: PLC and Motion control by Rockwell automation/ Schneider/Siemens

Network Communication: Network communication for trouble shooting and support

Noise Level: 72 dB(A) -88 dB(A)

Power Connection: 3x 415V(+/- 10 %), N, PE, 50Hz.

Control Cabinet: Switch cabinet made of stainless steel. IP 54

Machine Frame: Welded construction of stainless steel profiles

Machine Guarding: Safety guarding, electrically interlocked, to be opened at front side.Upper part of door transparent Macrolon/Lexan, lower part made of stainless steal

Lubrication/Greasing: Manually served blocks of individual nipples.

Operator: One operator shall be provided to look after the machine and refill the tubs, sealing membranes and lids.

Machine signs: English

Technical Documentation: Preliminary documentation to be delivered with the machine:

Hard copy:

- 1 x wiring diagram and part list in English
- 1 x document box with product information about electrical components.
- Operating and maintenance manual
- Spare parts list

Soft copy:

- 1 x wiring diagram and part list in English
- Source code of all software-tasks
- Operating and maintenance manual
- Spare parts list

Final documentation to be given after SAT.

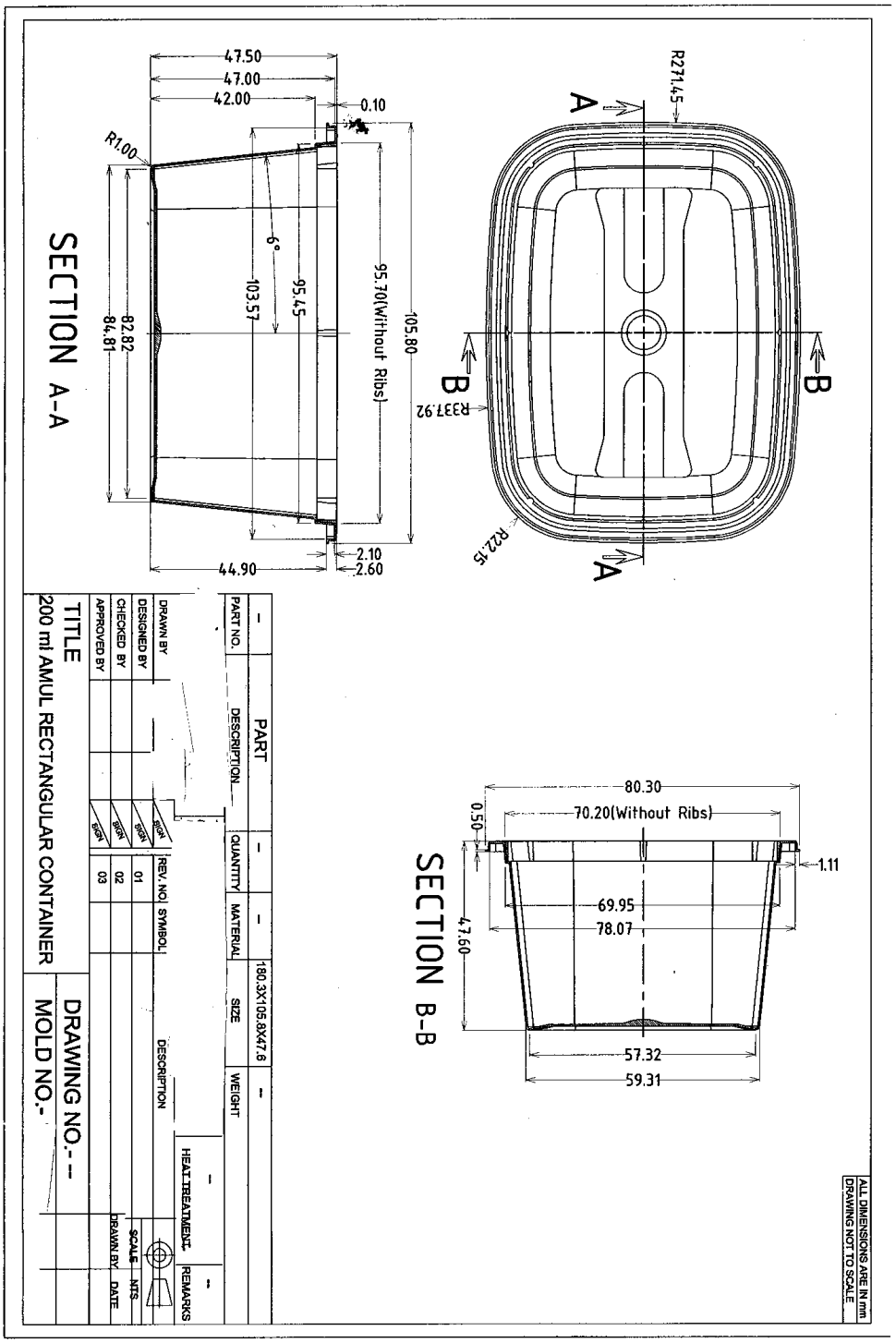
Machine Design: The construction and design of the machine shall be according to the applicable basic safety and health requirements.

Case Packer(Optional): Automatic case packer with the capacity of filling 10 cases/minute with cups of 50, 200 and 500 gm.

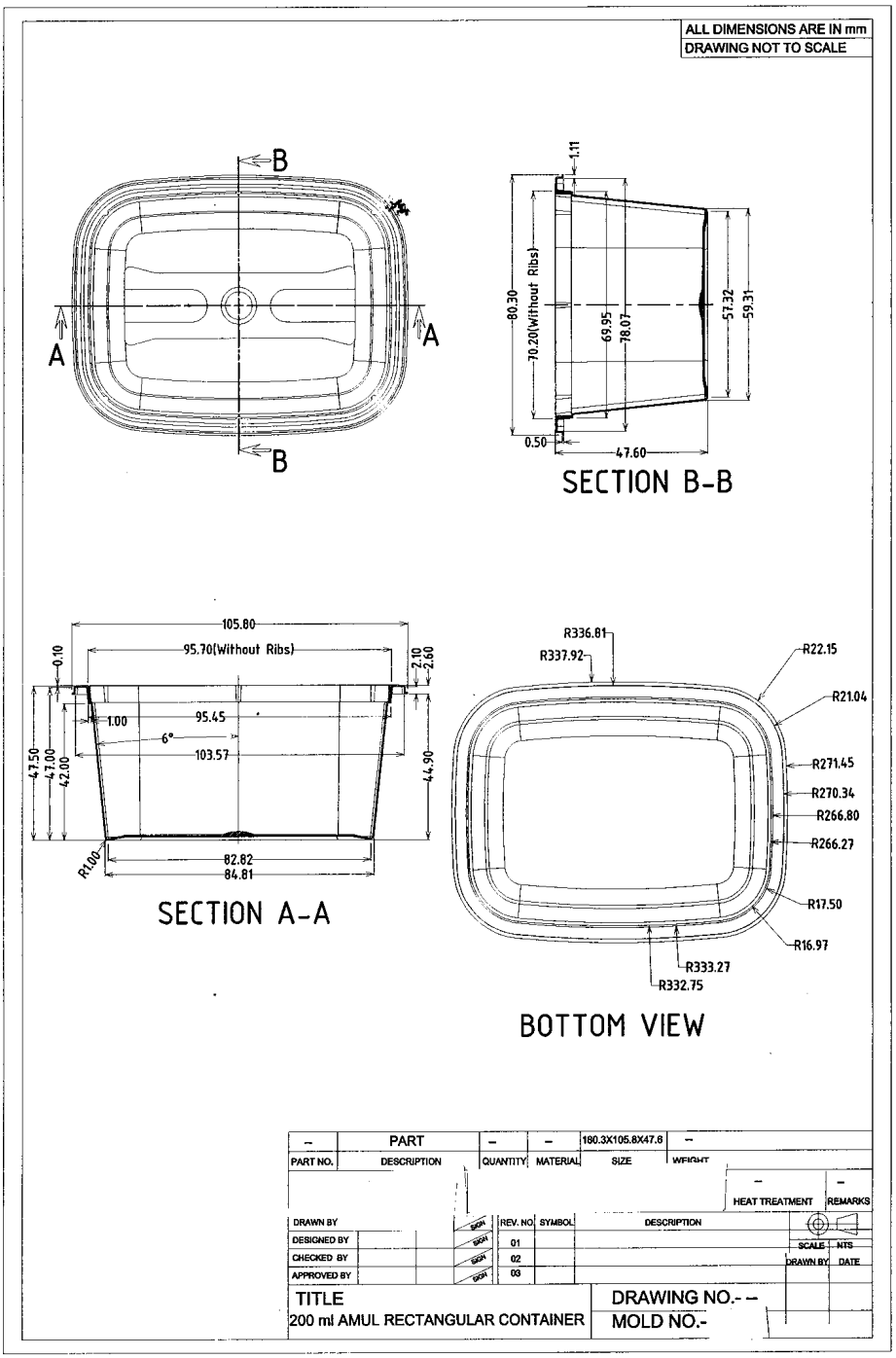
Cups per case & Case size : To be decided.

Spare Parts: Set of wear and tear parts- o-rings, gaskets,seals etc.
Electronic Spares-Sensors, Servo drive/motor etc.

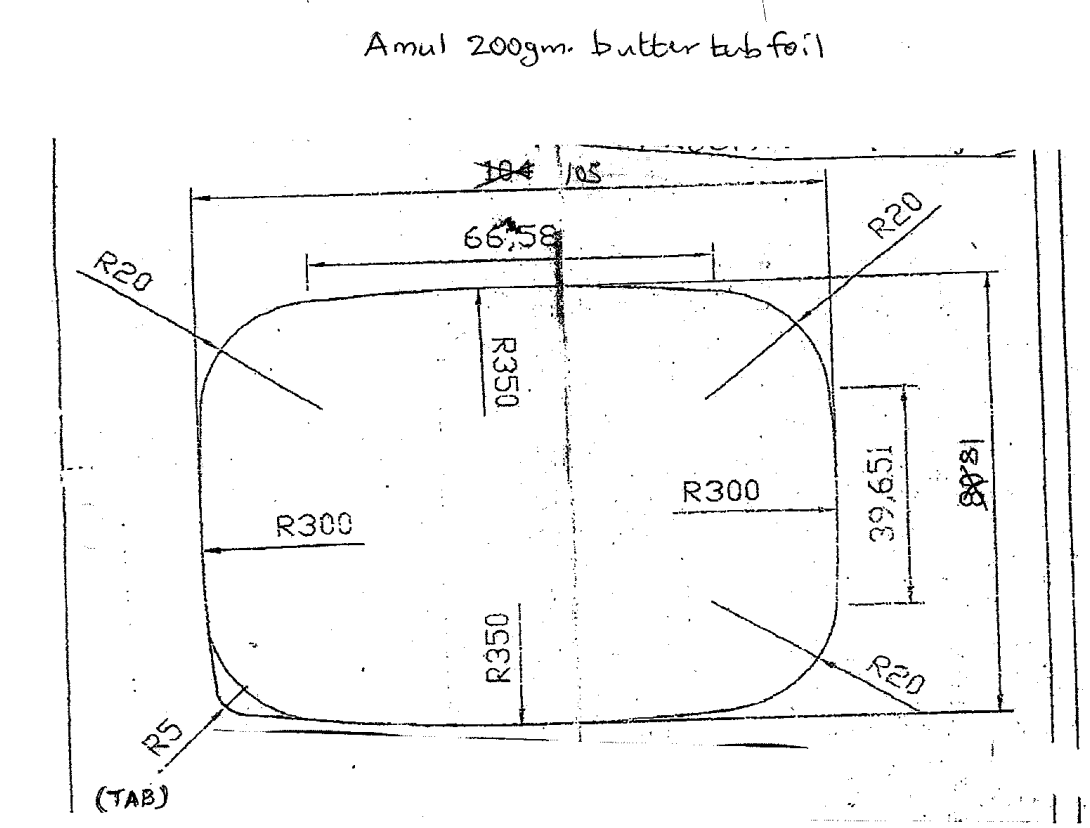
Dimensional drawing of 200gm Tub (Drawing -1)

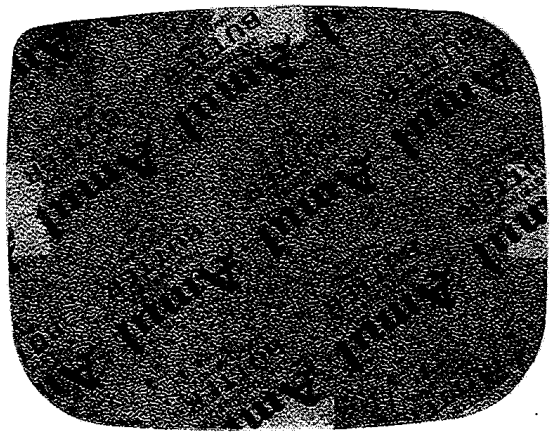


Dimensional drawing of 200gm Tub (Drawing -2)



Dimensional drawing of 200gm Tub (Drawing -3)





6.1.2 Design, Supply, Installation, Erection, Testing & Commissioning & integration with existing automation system.

Quantity: 01 Lot

The scope of work shall cover design, engineering, control philosophy, software development, manufacture, assembly, shop testing, packing, transportation to site, unloading at site, storage, erection, site testing & pre-commissioning, commissioning, integration with existing automation system, initial & successful operation and performance testing of the entire system.

6.1.3 Utility

A. Process Water : Scope starts from water line header available at Section.

B. Compressed Air : Compressed air distribution Scope starts from Air Header available at section.

C. Chilled Water : Chilled Water distribution Scope starts from Chilled water line header available at section.

D. Steam : Steam line distribution Scope starts from Steam Line header available at section.

E. Power : Power distribution Scope starts from supply available at section.

Utility consumption details :

Utility	Consumption
Steam:	*
Break up & Total steam, kg/hr with pressure in Kg/Sq. cm	*
Cooling water, m^3/hr	*
row / RO water consumption m^3/hr	*
Compressed air consumption, m^3/hr	*
Power, KW/hr	*

*** = to be filled by the bidder.**

Motors Details

	List of motors	Qty	Total Installed Power (KW)
1			
2			
3			
4			
6			
7			
8			
9			
10			
	Total kW		

PACK 2

Design, Supply, Installation and Commissioning of Cheese Blister Packing Machine, Capacity: 700 Tubs/min. at Kheda Satellite Dairy, Khatraj. Qty. - 1 Set.

6.2 Cheese Blister Packing Machine, Capacity: 700 Tubs/min. at Kheda Satellite Dairy, Khatraj

6.2.1 Technical Specification

CUP FORM FILL AND SEAL MACHINE FOR CHEESE SPREAD.

Quantity: 1 set

Product: Cheese Spread
Density: 1.03 g/cm ³
Viscosity: 590 cP @ 65.3 °C (Moisture: 59%)
Filling Temperature: 65-85 °C
Product cut without string formation at filling temperature
Homogeneous product (without particulates)

Filling Quantity: 10 g.

Filling Accuracy: Standard deviation +/- 0.15%

Format: 25-up (5 rows @ 5 cups)
Punch size: 41 x 51 mm
Cup Size: 33 x 43 mm
Forming depth : 12 mm

Punching Configuration: Single cup
-Grid punch

Cup Coding: Bottom embossing coding
2-rows @ 8 digits (3mm high)

End-of-Line Packaging: Case Packer

Packing Configuration: 25 Single cups (5 x 5 cups) per layer
10g: 4 layers high=100 cups / carton = 1kg / carton

Two cycles (=2 x 25 cups) will be taken over from the walking beam by means of two suction heads and then being transferred into two cartons.

Bottom Web Material: PVC rigid
Specific Gravity: 1.36
Width: 229 +/- 1 mm
Thickness: 300 µm

Color: White
Suitable for hot fill up to 70 deg C

Lid Material: 12 µ polyester + 12 µ polyester + 9 µ Aluminum foil
GSM: 65, Max: 70
Width: 229 +/- 1 mm
Sealable and peelable against bottom web (inside)
Suitable for hot fill up to 70 deg C.

Nominal Mechanical Output: 25- 28 strokes/min.
37,500 - 42,000 cups/hour

Machine Control: PLC and Motion control by Rockwell automation/ Schneider/Siemens

Network Communication: Network communication for trouble shooting and support

Noise Level: 72 dB(A) -88 dB(A)

Power Connection: 3x 415V(+/- 10 %), N, PE, 50Hz.

Control Cabinet: Switch cabinet made of stainless steel. IP 54

Basic Machine and Accessories

Basic Machine:

- Base frame with thermoforming, sealing, corner punching and punching stations. Lift movement for tool tables by means of eccentric shafts.
- Single drive for each station by means of servo-drives.
- Station positioning adjustment for sealing and punching station.
- Station for contact pre-heating with pneumatic drive
- Thermoforming with pneumatically drive for plug assists and compressed air into water-cooled mould.
- Base material feed with pre-draw-off for one reel including splicing table.
- Lid material feed with direct drive for one reel including splicing table.
- Material advanced by transporting and holding grippers, with an integrated cooling plate.
- Monitoring of base and lid material reels. At reel-ends machine shall give warning signal and stop automatically after pre-set time.
- One-sided splice detection for rolls of packaging material. Automatically discharge of splices within three draw-off lengths without machine stop and without product loss.
- Jam control in front of punching station.
- Complete pneumatic installation and air pressure service unit.
- Compressed air supplied via pressure regulator and pressure release valve. Air filtration via preliminary filter, sub-micro filter,

charcoal filter, additional sterile filter for the forming air.
- Cooling water connection
- Hygienic smoothly and easily cleanable surfaces.
- Easily accessible units for installation ans servicing.
- Integrated, air-conditioned switch cabinet with electrical control elements and PLC with integrated motion control. The stainless steel operator board with touch-screen shall be centrally located at the machine.
- Ethernet connection as preparation for remote control and tele-service via internet including a license for remote control software client.
- HMI- Human Machine Interface
  - Operator terminal: Touch Screen
  - Graphic operator guiding
  - ODA- Operating Data Acquisition in standard version.

- Standard Industrial -PC
  - Windows operating system
  - Touch screen for graphical operator guiding
  - Ethernet interface
  - Buttons and switches for start, stop, activation of separate functions etc.
  - Emergency stop button
- Graphical operator guiding
  - Selection of operator mode
  - Recipe handling
  - Password protected parameter modification (16 levels)
  - Display of actual operational data for machine status and alarm messages
  - Logbook for recipe selection, password used and parameter modification.
  - Service and control indicating
  - Onscreen operation manual for machine
  - Onscreen wiring diagram and process drawings
  - English language
- ODA- Standard Operating Data Acquisition

The data acquisition shall start with the input of parameters by the operator. Data like best before date or batch number shall be recordable.

Collected information:
- Production start time of the batch
- Product stand-by of machine during the batch
- Machine down time during the batch
- Cleaning time within the batch
- Sterilization time within the batch
- Absolute counter for material strokes (not re-settable)
- Counter for all material strokes of the batch (re-settable)
- Counter for filled production strokes of the batch

(re-settable)
The ODA shall end with input of a new batch number.
- Power supply unit for voltage stability0.
- Interface for connection of a printer for printing the parameter and process data
- Hammer shears for chopping punch waste with waste discharge

- Lubrication via grease distributors centralised for easy access at the each function unit

Protection system
- Switch cabinet IP54
- Machine IP65

PLC and Motion control by Siemens/Schneider/ Allen-Bradly

Maintenance Monitor shall allow to control the inspection and maintenance cycles of the machine components to support a preventive maintenance approach.

Features:
- Support planning and optimization of preventive maintenance
- Status display of all inspection and maintenance tasks: actual counter status, warning for upcoming or overdue inspection and maintenance tasks
- Printout of individual inspection and maintenance tasks as batch cards
- Timer and counter for inspection and maintenance cycles can be adapted to real environment
- User dependent filter settings: operator or maintenance staff related lists, inspection or maintenance tasks
- Detailed information for all inspection and maintenance tasks e.g. Relevant part numbers, reference to mounting position
- Additional instruction (pdf or video) can be added
- Export of spare part numbers for related components to selected inspection and maintenance tasks
- User login

Registration unit for print mark with lid material stretching device and heated stretching bar for plastic lid material and tear-off control.

Automatic adjustment for sealing station and punching station with base material scanner. According to the base material shrinkage the stations re-adjust to precise position, ensuring centered sealing and punching.

Hygienic Features : The following recommendations shall apply basically when utilizing hygienic, hygienic-active and aseptic devices:
- Hygienic Filling Machines for liquid and viscous foods
- Hygienic Filling Machines for the food industry quality assurance and maintenance checklist

Sterile air unit for charging a sterile-air overpressure inside the tunnel area.

Tunnel between thermoforming station and sealing station to be included in the the filling area. Tunnel with sight glasses and connection for sterile air supply.

Format:

Complete format set for pre-heating, thermoforming and sealing consists of:
- Contact heating plates for bottom web
- Thermoforming tool with plug assist and thermoforming mould
- Guide rails
- Sealing tool

Corner punching for making a slit in the corner of the cup edge. This part of the bottom foil is only connected to the package by the lid foil after the punching, making opening easier for the customer.

Punching tool for individual pack punching.
The punching tool consists of:
- Water-cooled upper table with die
- Pneumatically raised holding-down clamp
- Water-cooled lift table with die-plate and pack support
- Supporting guide columns.

Pack support in punching tool for better cleaning, to be lowered pneumatically.

Temperature control unit for punching tool

Coding unit in pack bottom
2 rows @ 8 digits (3mm high)

Filling System:

Vertical filling pump for soft pasty products, suitable for connection to customer's cleaning system, consists of :
- Frame
- Electronically controlled positioning drive for piston movement
- Pneumatically driven rotary valve movement
- Infinitely variable volume adjustment
- Infinitely variable adjustment for back-suction
- One set of filling cylinder with pistons, rotary valves and filling nozzles.

Immersion system

Product distribution tube for one product

Product container with temperature control (integrated heating device) CIP cleanable, consists of :
- Frame for container

- Product container with double jacket and integrated heating device
- Temperature supervision
- Safety valve
- Level probe
- product inlet valve
- Cleaning valves
- Sterile-air feed with sterile filter and close-off valve

Pressure charge for product container

Agitator with wall scraper, integrated into product container.

CIP system for Filling Pump for connection to an existing CIP-cleaning unit consists of :
- rinsing box
- valves and piping for CIP cleaning
- CIP-software for control of the valves

Case Packer:

Walking beam discharge for controlled pack discharge of portion cups in connection with case packer including empty and faulty pack discharge.

The walking beam shall take over a complete punch cycle out of punching station. During the transporting process the packs will be staggered in cross and longitudinal direction. The staggered punch cycle shall be placed into one carton/tray one or several layers high.

Case packer shall consist of :
- Frame
- Machine guarding
- Carton/tray transport conveyor for manual infeed of cartons/trays
- Cup transfer unit (horizontal movement)
- Vacuum and pneumatic installation
- Electrical installation

Function:
The collator station transfers complete punch cycles into cartons/trays in one or multi layers. The carton/tray infeed as well as the downstream closing of the cartons shall take place manually.

Case packer shall be designed for the transfer of two punch cycles in parallel to cup discharge feeding direction into two cartons/trays.

Suction head including vertical movement.

cartons/tray dimensions:

- Height = 57 mm
- Length = 260 mm
- Width = 210 mm

Spare Parts: Set of wear and tear parts- o-rings, gaskets,seals etc.
Electronic Spares-Sensors, Servo drive/motor etc.

6.2.2 Design, Supply, Installation, Erection, Testing & Commissioning with interlinking with existing machine is in your scope.

Quantity: 01 Lot

The scope of work shall cover design, engineering, control philosophy, software development, manufacture, assembly, shop testing, packing, transportation to site, unloading at site, storage, erection, site testing & pre-commissioning, commissioning, initial & successful operation and performance testing of the entire system on turnkey basis.

6.2.3 Utility

A. Process Water **:** Scope starts from water line header available at Section.

B. Compressed Air **:** Compressed air distribution Scope starts from Air Header available at section.

C. Chilled Water **:** Chilled Water distribution Scope starts from Chilled water line header available at section.

D. Steam **:** Steam line distribution Scope starts from Steam Line header available at section.

E. Power **:** Power distribution Scope starts from supply available at section.

Utility consumption details :

Utility	Consumption
Steam:	*
Break up & Total steam, kg/hr with pressure in Kg/Sq. cm	*
Cooling water, m^3/hr	*
row / RO water consumption m^3/hr	*
Compressed air consumption, m^3/hr	*
Power, KW/hr	*

*** = to be filled by the bidder.**

Motors Details

	List of motors	Qty	Total Installed Power (KW)
1			
2			
3			
4			
6			
7			
8			
9			
10			
	Total kW		

PACK 3

Design, Supply, Installation and Commissioning of Ghee Plant Capacity: 2 Ton/Hr at Amul Dairy, Anand. Qty. - 1 Set.

6.3 Ghee Plant Capacity: 2 Ton/Hr at Amul Dairy, Anand.

Technical Specification

6.3.1 Continuous Butter Melters

Capacity:	2 TPH
Quantity:	2 No
Application:	Melters shall required for white butter Blocks
Design Feature:	Melter shall be equipped with CIP spray ball.
	The melter shall be provided with insulated, jacketed with temperature control facility. Rest Platform shall be provided for blocks and emptying boxes.
Type:	Continuous melter
Quantity:	2 Nos.
Capacity:	2000 kg/hr
M.O.C:	AISI 304
Thickness:	To be specified for inner, intermediate, outer and bottom shell.
Motor(kw) (VFD driven):	Suitable
Block Temp.:	-5 deg C
Melted product outlet:	80 deg C Temperature
Block weight:	15 kg
Block dimensions:	15 kg – 330X 255 X 210mm

Instrumentation:	Temperature control, high and low level sensors and controller.
Accessories and fittings:	CIP spray ball, thermal control module to maintain melting temperature, lifting hook, SS 304 with chequred platform. Outlet valve, pumps and fittings for product emptying from vat.
Insulation:	Thermal insulation

6.3.2 Molten Butter Transfer Pump with VFD

Capacity:	10 KLPH
Quantity:	1 No
Application:	Transfer the Molten butter from Butter melting vat to Intermediated storage tanks
Make:	Alfa Laval/ Gea
Type:	Centrifugal
Fittings:	Quick opening sanitary fittings
Material:	AISI 316
Coupling:	Mono-block
Mounting:	Free standing with adjustable SS ball feet
Shaft sealing:	Mechanical shaft seal
Gasket:	Nitrile rubber
Shroud:	AISI 304
Motor:	415V, AC, 3 phases, 50 Hz. Squirrel cage induction motor with TEFC/IP 55 Enclosure

6.3.3 Serum Separator

Quantity:	02 Nos.
Capacity:	2KLPH
Make:	Alfa Laval
Special Feature:	The design of Serum Separator shall be an of efficient centrifuge which undertakes separation duties such as purification" (separation of two immiscible liquids - the main purpose of purification being lighter of the two liquid phases, shall contain as little as possible of the heavier phase).

Connections of utilities shall be so designed as to permit quick and "temporary' installation where ever needed – even in the 'Critical Hygiene Area' during operation and can be disconnected and wheeled out of the area when cleaning shall necessary .

The piping design and layout shall permit complete dismantling, chemical sanitization and even autoclaving of flow components, if necessary. Online CIP shall also possible.

The piping shall designed with a special consideration for hygienic and contains following :

- All product-wetted parts in the separator shall have high grade stainless steel.
- Clamp connections shall be use on all process piping to allow complete disassembly.
- Shall have Low shear disk inlet.
- Facility shall be provided for Antifoam fouling for centrifugal separators.

Other Accessory: The Separation module shall consists of an solids-ejecting centrifuge, with speed transmitter, timer-triggered discharge and fixed discharge volume. The electrical system shall be supplied with starter and specially designed PLC based control Panel. Quantity: 01 Set

Technical data:

- Max. throughput capacity 2 m3/h*
- Max. solids-handling capacity 33 l/h
- Feed temperature range 0-120 oC
- Installed motor power 3.0 kW or as per design
- Noise level as per standard (ISO 3744 or 3746) 69 dB(A)

Utilities consumption:

- Electric power 0.6-2.2 kW**
- Discharge and closing liquid 0.5 l/discharge
- * Actual capacity depends on type, design and composition of feed and separation demands.

- ** Depends on flow rate.

6.3.4 Serum Tank (Jacketed)

The tank is used for storage of Serum.

Quantity:	02 Nos
Capacity:	2500 L
	The volume of the tank shall be such that after filling it up to the rated capacity, the level would be 100 mm below the line where cylindrical shell joins the conical top.
Material:	a) Inner shell - AISI 304, 3mm thickness
	b) Outer cladding – AISI 304
Finish:	All welding joints are to be ground smooth. All stainless steel surfaces are to be polished to 150 grits.
Insulation:	PUF insulation of suitable thickness to ensure temperature rise does not exceed 1 Deg C in 24 hour time.
Ports and fittings :	Inlet/outlet, CIP spray ball, high and low level sensors, temperature sensors, level transmitter and manhole
Instruments:	RTD for milk temperature to be indicated on central control Proximity switch for manhole indication.Make: E&H
Level Indicator:	Electronics level indicator-having accuracy of + or – 0.25% and shall be of sanitary type. Smart Level Transmitter for level indication to HMI/control panel shall be of digital type 24 VDC & 4 – 20 mA outputs, 2 wire systems (Hydrostatic type). Or suitable to supplied automation system. – 01 no., Make: E&H
Level Probe socket:	High level and low level probe provision along with supply of level probes and level switches for level indication in control panel/HMI shall be include in scope of supply. – 2 Nos, Make: E&H
Thermowell:	200 mm long stainless steel (AISI 304) inclined pocket suitable for mounting stem type digital thermometer shall be suitably located in the alcove. Temperature to be indicated on HMI/ control panel. It shall have suitable BSP male threads. – 1 no.
Agitator:	Suitable, Qty: 01 No, Make:Crompton/ABB/Nord

Make of Instrument: E&H only

6.3.5 Intermediate Molten Butter Storage/ Pre-stratification Tank

Quantity: 02 Nos.

Capacity: 5000 L

The volume of the tank shall be such that after filling it up to the rated capacity, the level would be 100 mm below the line where cylindrical shell joins the conical top.

Material: a) Inner shell - AISI 304, 3mm thickness

b) Outer cladding – AISI 304

Finish: All welding joints are to be ground smooth. All stainless steel surfaces are to be polished to 150 grits.

Insulation: PUF insulation of suitable thickness to ensure temperature rise does not exceed 1 Deg C in 24 hour time.

Ports and fittings: Inlet/outlet, CIP spray ball, high and low level sensors, temperature sensors, level transmitter and manhole

Instruments: RTD for milk temperature to be indicated on central control

Proximity switch: For manhole indication.Make: E&H

Level Indicator: Electronics level indicator-having accuracy of + or – 0.25% and shall be of sanitary type. Smart Level Transmitter for level indication to HMI/control panel shall be of digital type 24 VDC & 4– 20 mA outputs, 2-wire systems (Hydrostatic type). Or suitable to supplied automation system. – 01 no. Make: E&H

Level Probe socket: High level and low level probe provision along with supply of level probes and level switches for level indication control panel/HMI are included in scope of supply. – 2 Nos. Make: E&H

Thermowell: 200 mm long stainless steel (AISI 304) inclined pocket suitable for mounting stem type digital thermometer shall be suitably located in the alcove. Temperature to be indicated on HMI/ control panel. It shall have suitable BSP male threads. – 1 No.

Agitator: Suitable, Qty: 01 No, Make:Crompton/ABB/Nord

Make of Instrument: E&H only

6.3.6 Molten Butter Transfer Pump with VFD

Capacity:	10 KLPH
Quantity:	1 No
Application:	Transfer the Molten butter from Butter melting vat to Intermediated storage tanks
Make:	Alfa Laval/ Gea
Type:	Centrifugal
Fittings:	Quick opening sanitary fittings
Material:	AISI 316
Coupling:	Mono-block
Mounting:	Free standing with adjustable SS ball feet
Shaft sealing:	Mechanical shaft seal
Gasket:	Nitrile rubber
Shroud:	AISI 304
Motor:	415V, AC, 3 phases, 50 Hz. Squirrel cage induction motor with TEFC/IP 55 Enclosure

6.3.7 Ghee Cooking Kettle

Ghee Kettle with PLC based control

Quantity:	02 Nos
Capacity:	2 Tonn
MOC:	SS 316
Type:	Jacketed Vertical leg free standing
Inner Shell:	The inner shell with cylindrical body ,hemispherical bottom and reinforced brim shall be fabricated from stainless steel plate of thickness 8mm conforming AISI 316

Intermediate shell:	The intermediate shell with cylindrical body, hemispherical bottom and reinforced brim shall be fabricated from AISI 304 plate of thickness 6mm.
Outer Shell:	The outer shall with cylindrical body and hemispherical bottom shall be fabricated from stainless steel sheet of 2MM thickness to AISI 304
Jacket design:	Heating from 60degC to 150degC within 30minuts
Heating media :	Steam at 2.5 to 5 bar pressure
Outlet:	Side & Bottom both with SS304 butterfly valve
Agitator:	Top Agitator
Ports & fittings:	High level & Low level fittings, temperature sensor mounting, Level transmitter mounting
Accessories:	steam control valve with temperature controller, safety valve, steam trap and bypass assembly
Control Panel:	SS304 consist of MCB, Indication, contactor, PT100 temperature sensor, hooter & relays.
Instruments:	E&H make Level transmitter with indicator, temperature sensor

6.3.8 Ghee Storage Tank

Quantity:	02 Nos
Capacity:	5 Tonn
MOC:	SS 304
Type:	Jacketed Vertical leg free standing
Inner Shell:	3MM thickness & MOC - AISI 316
Jacket:	2 MM thickness & MOC -AISI 304
Jacket design:	cooling from 90 °C to 40 °C within 3 to 5 hours
Cooling media:	water at 25° C to 30 °C
Inlet:	Top
Outlet:	Side & Bottom both with SS304 butterfly valve

Agitator:	Top Agitator
Ports & fittings:	High level & Low level fittings, temperature sensor mounting, Level transmitter mounting, manhole, SS304 spray ball, air vent, railings.
Instruments:	Level transmitter with indicator, temperature sensor

6.3.9 Ghee Transfer Pump (5 bar Pressure)

Capacity:	10 KLPH
Quantity:	1 No
Application:	Transfer the ghee from Ghee Storage Tub to Pressure Filter
Make:	Alfa Laval/ Gea
Type:	Centrifugal
Fittings:	Quick opening sanitary fittings
Material:	AISI 316
Coupling:	Mono-block
Mounting:	Free standing with adjustable SS ball feet
Shaft sealing:	Mechanical shaft seal
Gasket:	Nitrile rubber
Shroud:	AISI 304
Motor:	415V, AC, 3 phases, 50 Hz. Squirrel cage induction motor with TEFC/IP 55 Enclosure

6.3.10 Ghee Clarifier

Quantity:	01 Nos
Capacity:	2000 LPH
Make:	Alfa Laval/GEA
Application:	Clarification of Ghee
Basic Feature:	Ghee clarifier shall comprises a frame containing in its lower part a horizontal drive shaft with friction clutch and brake, work gear and a vertical bowl spindle. The worm gear is placed in an oil bath. The bowl is fixed on the top of the spindle. All parts coming in contact with Ghee such as bowl hood, disc, distributor shall made of stainless steel. The bowl body is lined

with stainless steel. The machine frame MOC shall have cast iron and lock ring is of tinned carbon steel. The frame is painted in Epoxy enamel of Alfa-blue colour. A set of standard spare parts and standard tools shall also supplied with the machine.

Technical Data

Capacity:	2,000 LPH. Throughput for clarification of Ghee shall depend on viscosity, density, temperature and solids percentage.
Motor:	A standard electric motor of 10 HP suitable for operation on 440 volts 50 Hz 3 phase AC supply.
Drive:	Motor drives the spindle via friction clutch
Lubrication:	Gears shall immersed in oil bath
Connection:	As per design
Outlet:	As per design

6.3.11 Inline Pressure Filter

Capacity:	Suitable
Quantity:	01 No
Application:	Filtration of Ghee
Design Feature:	In line Pressure filtration

6.3.12 Inline Duplex Strainer

Capacity:	Suitable
Quantity:	01 No
Application:	Filtration of Ghee
Design Feature:	In line Strainer

6.3.13 Ghee Storage tank

Application:	Ghee shall be stored in this tank at 60-65 deg C
Quantity:	04 Nos
Capacity:	10 Tonn
MOC:	SS 304

Type:	Jacketed Vertical leg free standing
Inner Shell:	3MM thickness & MOC - AISI 316
Outer Shell:	The outer shell and flat bottom shall be made from stainless steel sheet of 2MM thickness to AISI 304
Jacket:	2 MM thickness & MOC -AISI 304
Inlet:	Top
Outlet:	Side & Bottom both with SS304 butterfly valve
Agitator:	Top Agitator
Ports & fittings:	High level & Low level fittings, temperature sensor mounting, Level transmitter mounting, manhole, SS304 spray ball, airvent, railings.
Instruments:	Level transmitter with indicator, temperature sensor

6.3.14 Balance Tank for Cooling/Hot water Return

Capacity:	500 Ltr
Quantity:	1 No
Application:	Balance tank to collect water from process tank's jacket
Design Feature/Type:	Vertically cylindrical single walled, Flat bottom MOC AISI - 304

6.3.15 Pump for cooling/Hot water Return

Capacity:	10 KLPH
Quantity:	1 No
Application:	Transfer the ghee from Ghee Storage Tub to Pressure Filter
Make:	Alfa Laval/ Gea
Type:	Centrifugal
Fittings:	Quick opening sanitary fittings
Material:	AISI 316
Coupling:	Mono-block
Mounting:	Free standing with adjustable SS ball feet
Shaft sealing:	Mechanical shaft seal
Gasket:	Nitrile rubber

Shroud:	AISI 304
Motor:	415V, AC, 3 phases, 50 Hz. Squirrel cage induction motor with TEFC/IP 55 Enclosure

6.3.16 Product Piping , Fittings, Valves & Supports

Size:	Suitable
Quantity:	1Lot

Pipes:

Sizes:	As required
Type:	TIG welded; annealed and de-scaled tubes shall be manufactured as per the standard ASTM-A270.
Material:	AISI 304
Finish:	Outer surface of the tubes should be with dairy finish and inner surface should be pickled as per dairy standard
Thickness:	The average wall thickness of tubes should be 1.6 mm up to 51 mm OD and 2.0 mm for diameters above 63.5 mm OD. The wall thickness at any point shall not vary more than 5% over and under from the average wall thickness specified. The ovality on the open ends shall be within the permissible limit specified in the ASTM A270.

SS 304 Fittings

Type:	SMS or quick opening tri-clover clamp type.
Thickness:	Thickness of fitting made from tube will not be less than 1.6 mm up to 50 mm dia and will not be less than 2.0 mm for above 50 mm dia.
Unions:	Will be complete with liner, male nut and gasket. Liner made of male parts will be suitable for expansion joints.
Pipe clamps:	Will be quick opening type

Supports required for pipes:

Size:	Square sections as required
Type:	Supported from walls, celling and floors
Material:	AISI 304
Thickness:	As required. Support RHS shall have wall thickness of 2.5 mm for size up to 100 x 50 mm and above it shall be 3 mm thick.

Self supported SS 304 platforms for approach of tanker man ways with railings.

Duty: To access man ways

Type: Self supported

Material: SS 304

Accessories: Stairs kick plates and handrails

6.3.17 Pneumatic Valve for Product

Size: Suitable

Quantity: 01Lot

VALVES :

Sanitary Pneumatic Seat Valves

Type: Two way / three way pneumatically operated sanitary valves of mix-proof (self cleaning), ON-OFF seat valves, flow diversion valves, should be provided with ASI connectivity. All the valve battery valves shall be of self cleaning type mix proof valves having 3 solenoid (each).

Material: AISI 316

Sealing: Positive

Controls: Electrically/electronically operated integral solenoid valves and valve position feed back (on and off both).

The Pneumatic valves should have the following features to cater to fulfill the above functional requirements:

Housing should be ball shaped for the ideal flow characteristics to ensure 100% cleanability by CIP. Housing closed by cover plates should not create a sump or dead corners. Housing interconnections shall be by detachable type clamp connection. The seals such as housing seals, stem seals and disc seals shall be flush mounted.

Valves should have low/very low susceptibility for the pressure surge. The valve should have the short leakage outlet to recognize the leakage immediately.

Mix proof valves should be used wherever the CIP and the process liquids are inter-crossing in the piping system. The CIP of the isolation area is possible and also the leakage shall be easily identified.

The bidder to quantify the number of transmitters required, based on the tender as well as functional requirement & offer accordingly.

All pneumatic connections from the header up to individual valves should be of SS-304 through suitable SS-304 distribution headers connected with FRL units/moisture separator etc. 500 mm pneumatic flexible tubing to be considered at control unit side for all valves.

The pneumatic valves should have required diagnostic features, to be monitored from HMI & recorded in the system. The valves should also be configurable from the HMI/operator console.

SS Pneumatic Valves (All Types other than Mix Proof Valves)

Type:	Two way / three way pneumatically operated safety break valve, ON-OFF valves, Ball Valve, Butter fly valve, flow diversion valves etc.
Material:	AISI 304
Sealing:	Positive
Controls:	Electrically or electronically operated solenoid valves and valve position feed back (both open & close) to main PLC system.

SS Pneumatic Mix Proof Valves

Type:	Mix proof valves
Material:	AISI 304
Sealing:	Positive
Controls:	Electrically or electronically Operated Integral solenoid valves and valve position feed back (both open & close) to main PLC system.

SS Manual Valves & Fittings

Required number of valves to be finalized during detail engineering as per functional requirement & standard engineering practice.

a) **Manual butter fly Valve:**

The butter fly valve shall be of sanitary design and all liquid contacting parts shall confirm to AISI 316. The valve sealing gasket shall be EPDM /Nitrile rubber material suitable for hot water sterilization temperature of 100 Deg. Celsius and hot acid and lye solution of 2% concentration at 85 Deg. Celsius. The valve shall be provided with SS handle.The valve shall be with plain ends shall be suitable for direct welding on the pipes.

b) Non Return Valve:

The non return valve shall be of sanitary design and all liquid contacting parts shall confirm to AISI 304. The valve sealing gasket shall be EPDM / Nitrile rubber material suitable for hot water sterilization temperature of 100 Deg. Celsius and hot acid and lye solution of 2% concentration at 85 Deg. Celsius. The non return valve shall be with plain ends shall be suitable for direct welding on the pipes.

c) Unions:

All the parts unless otherwise specified shall be made out of investment casting using AISI 304 material The union shall be complete with liner, male part, nut and sealing ring (neoprene food grade rubber gasket). The liner and male parts should be suitable for expansion joints. All the inside as well as out side surface of the union shall be with dairy finish.

d) In-line Sight Glass :

The in-line sight glass should be complete with SMS unions at both ends having toughened heat resistant glass and protective stainless steel cover. It should have quick replacing arrangement for replacement of glass by flange and bolts. The material of construction shall be AISI 304 unless otherwise specified. All the inside as well as outside metal surfaces shall be with dairy finish.

Bend, Tee, Elbow :

These fittings shall be made out of AISI 304 unless otherwise specified, process tube, TIG welded, annealed, de-scaled having outer surface mirror polished and inside pickled, manufactured as per ASTM A270. The thickness of the fittings made from the tube section should not be less than 1.6 mm up to 76 mm dia and should not be less than 2.0 mm for above 76 mm dia. The wall thickness at any point shall not vary more than 12.5% over and under from the average wall thickness specified.

Bends and elbows shall be free from wrinkles. Tee shall have uniform flaring on the branch connection. The ovality on the open ends shall be within the permissible limit specified in the

ASTM A270.

6.3.18 Utility Piping, Fittings, Valves, Insulation

Quantity: 01 Lot

Size: Suitable

Service	Size	Specification	Remarks
Water / Air	15mm to 40mm	CS body, SS ball, PTFE seats, 800# with SW or SCD ends ball valve	Pressure < 3.5 Kg / Sq.cm
	50mmto 300mm	CI body 13% Cr disc, 125# wafer type butterfly	
	NRV (all sizes)	CS body 13% Cr trim, wafer type check	
Chilled water	15mm to 40mm	CS body, SS ball, PTFE seats, 800# with SW or SCD ends ball valve	Pressure < 3.5 Kg / Sq.cm
	50mm to 300mm	Wafer type butterfly type type flanged construction.	
	NRV (all sizes)	CS body 13% Cr trim, wafer type check	

6.3.19 Power panel, Power Cables & Accessories

Size: Suitable

Quantity: 1Lot

MCC: M.s. Powder Coated non - compartmental.

Cable Tray: S. S. 304 Wire mesh

Cable: Lapp/Hylite/Finolex

Switchgear: L&T / SIEMENS

6.3.20 Control Panel(PLC), Control Cable, Field Instruments & Accessories

Size: Suitable

Quantity: 1Lot

PLC: SIEMENS/Allen Bradley

Control Cable: Lapp/Hylite/ Finolex

Field Instruments: E&H, SIEMENS,EMERSON

Component: L&T / Connect well / Schneider/Equivalent

Control Panel: AISI - 304

Utility consumption details :

Utility	Consumption
Steam:	*
Break up & Total steam, kg/hr with pressure in Kg/Sq. cm	*
Cooling water, m^3/hr	*
row / RO water consumption m^3/hr	*
Compressed air consumption, m^3/hr	*
Power, KW/hr	*

*** = to be filled by the bidder.**

Motors Details

	List of motors	Qty	Total Installed Power (KW)
1			
2			
3			
4			
	Total kW		

6.3.21 Details Specification of Utility,Automation,Instrument and Electrical Refer Page No. 159

1) Chill Water Pipes,Valves & Fittings.
2) Compressed Air Pipes & Fittings.
3) Raw Water Pipes & Fittings.
4) RO Water Pipes & Fittings.
5) Plant Supporting Structure & Maintenance Platform.
6) Automation System.
7) Field Instruments,Control Valves & Accessories.
8) Electrical & Earthing System.

UTILITY,AUTOMATION,INSTRUMENT AND ELECTRICAL PART FOR PACK 1, PACK 2 & PACK 3

6.4. Water Distribution System

6.4.1 Chilled water pipes, valves & fittings

Quantity : 1 Lot

GI 'B' class pipes and fittings to interconnect chilled, chilled water tank and chilled water pump sets. The pipes will be as per IS 1239 for size 150NB and below & as per IS3589 for sizes above 150 NB. The necessary pipe support, valves, non-return valves etc. as per compact layout.

6.4.2 Raw water Pipes & Fittings

Quantity : 1 Lot

Water ring mains of medium duty galvanized mild steel. The fittings shall include valves, non return valves, control valves flow meters and supporting structural.

6.4.3 RO water Pipes & Fittings

Quantity : 1 Lot

Water ring mains of medium duty galvanized mild steel. The fittings shall include valves, non return valves, control valves flow meters and supporting structural.

6.5 Compressed air pipes & fittings

Quantity : 1 Lot

Instrument air ring mains shall be of ERW pipes/ galvanized MS heavy duty (C class) . From ring main, a line shall be tapped for particular sections and accessories considered are isolating valve, air filter regulator and distribution plate. From distribution plate, nylon tube shall be provided to connect to the utility points. Instruments tubing more than 1 meters shall be laid in protective flexible hose / conduit. All valves and fittings, which are not welded up to 50 mm NB shall be, screwed type and above 50 mm shall be flanged type.

6.6 Plant supporting structure & Maintenance Platforms etc.

Maintenance platforms shall be provided by the bidder.

Support for these platforms shall be taken from the civil building beams and / or columns. Approach to these platforms shall be provided from the nearest building floor level through suitable walk way and / or ladders. Railings – up to 1 M height, shall be provided, wherever required.

Bidders to include Pipe supports, small Crossover Bridge, Utility bridge, standing platforms as required.

Quantity : 1 Lot

M.O.C : AISI 304

6.7 AUTOMATION SYSTEM

6.7.1 PLC based control system

Quantity :1 Set

Microprocessor based Programmable Logic Controller (PLC) will be used for centralized operation of the plant.

The PLC system offered will have open architecture and will use common engineering tool for operator station, automation system, communication system, engineering system and I/O. Sub systems are integrated together with standard & proven networks with fully optimized & standard open protocols.

Comprehensive self-diagnostic features will be provided to facilitate easy fault location and detection of failure without individually checking each module. On-line testing facility of control system while the unit is in operation, will be provided with suitable indication for easy identification of faulty module.

The process / final control element interface section of PLC will comprise of various signal interface cards suitable for hard wired DI/DO & AI & AO communication with field devises, I/O stations, local control panel, actuator/sensor, frequency drives.

Sensors will be checked for open and short circuit conditions. Failure of sensor / transmitter will not lead to malfunction of the corresponding control system as shown in the configuration diagram.

6.7.2 Server

Quantity : 01 Lot

Server will store all the relevant information from the PLC and all networked computer connected and will generate the MIS report.Necessary RDBMS software either ORACLE or SQL server and D2K or visual basis as front end will be considered for data storage and MIS report generation.

6.7.3 Operator Work Station PC

Quantity : 1 Nos.
Type : Quad Processor PC with 21" color TFT screen

The HMIs (21" color TFT – LCD display with keyboard & mouse) would be high end PC & shall have DVD_RW drives with back-up data recording facility. The hard disc shall have data storage capacity of at least 90 days plant data. Suitable hardware & software shall support multi screen technology.

The monitoring / control terminal will be fully capable of addressing any plant data thus, will function as a single window for operation and monitoring. Each terminal will be independent with its support hardware including adequate local

memory for resident database to reduce data traffic through the highways. The resident data will be continuously updated at all terminals

All navigation buttons should be visible on one screen at a time.

Printing of graphs/trends & report would be possible from the HMIs.

6.7.4 Printers

Laser Jet B/W suitable for A4 /A3 - 1 No.
Dot Matrix 132 column - 1 No.

6.7.5 Network hard ware

Fiber Optic Cable – 1 Lot
UTP / STP Cables – 1 Lot
Switches – As required

6.7.6 System Software

The system software will be based on open architecture. For networking TCP/IP or ISO-OSI model will be in use. It will be latest object oriented software, which result in fully scalable system. Original license version of the latest release of software will be used.

Quantity : 1 Set.

6.7.7 UPS system for Automation, Instruments

The Suitable capacity UPS (1W + 1parallel) power supply is considered for PLC power supply. On total failure of the incoming A.C. supply to the

plant, sufficient battery back-up has been envisaged to allow all control and

instrumentation equipment to operate for at least 30 minutes to allow safe

shutdown of the plant.

24 V DC power supply will be used wherever applicable for Control System and will be derived from UPS, Any other voltage level required for the system will be the responsibility of the Bidder along with all required hardware.

Quantity : 1 Nos.

6.8. Field Instruments, Control Valves & Accessories

6.8.1 Process transmitters

Quantity : 1 Lot

All the Process Transmitters will be based on Hard wired AI/AO modules with Local Digital Indicator.

Measuring ranges of transmitters will be selected in such a way that the rated value of the measuring variables appears at approx. 50-70% of the span.

The sensing elements and internal parts will be constructed with AISI 316 . In case of stock and corrosive fluid application, diaphragm seal type transmitter with capillary is foreseen.

Transmitters will generally be installed on Instrument Stands made of 2" SS pipes located at convenient points.

6.8.2 Process gauges

Quantity : 1 Lot

Process gauges will be provided for local indication on all utility lines.

Pressure gauge sensing element will be Bourdon / Bellow / Diaphragm type in general depending upon the process condition. Direct reading Pressure / Differential Pressure gauges will be used of SS 316 sensing element and AISI 304 movement material.

All accessories, such as 2-valve manifold etc. will be provided with pressure gauges according to application. Where process temperature exceeds 70 ° C, siphon loops will be utilized.

Local temperature measurement will be done bi-metal Temperature gauges. Temperature gauges may be direct mounted type (multi angle) or with SS capillary extension (at least 3 Mtrs) as per the application area.

The sensing element / bulb / capillary etc. will be of SS 316 for temperature gauges

6.8.3 Temperature elements

Quantity : 1 Lot

All Temperature Sensors Elements will be of Duplex type with SS 316 sheath and MgO filled. Depending on temperature ranges, Pt-100 3-wire Resistance Temperature Detector (RTD).

Thermocouple / RTD heads, with chain holder, will be of the waterproof type, with duplex terminal block, gas kitted cover and stainless steel chain. Screwed covers will be used.

6.8.4 Control valves

Quantity : 1 Lot

Pneumatic control valves complete with microprocessor based electro pneumatic positioners.

The control valve sizing will be done in such a way that the calculated noise level at worst operating condition will not be more than 85 DBA at 1 m distance.

Valve trim material will be harder than, but compatible with, the pipe in which it is installed.

All control valves will have sufficient overload range. At maximum operation, the control valves will be at 75-80% open. Valve bodies will be no more than two (2) line sizes smaller than the pipe in which they are installed.

Leakage class ANSI IV

All control valves (independent of their type) will have a tight shutoff against at least 110% of the maximum design pressure. The stroke/throughput characteristic will, dependent on the purpose. The valve stems will be well guided and the valves will operate without excessive vibration and noise. The above will achieve a stable fluid control over the entire flow range. Control valve design and location will take into account flashing and cavitation conditions.

In case of failure of electric or pneumatic supply or in case of failure of the controller output signal, the actuators will remain locked in actual position or will reach a safe position, depending on the particular case.

Calve positioners will be suitable for Analog input/output to PLC system.

6.8.5 Control cables & Other Miscellaneous items like Instrument H/w , Tubing & conduits

Quantity : 1 Lot

6.9 Electrical

6.9.1 Intelligent Motor Control Center

Quantity : 1 Nos
Type : Suitable for indoor installation with a provision for expansion.
Feeders : Incoming feeder from Existing Electrical System. All outgoing feeders shall have isolation facility, protection and monitoring, . All feeders shall have vfds . Cable entry shall be from Top.

Instruments : Standard switch gears with ON off facility from PLC

General specifications

Functional Requirement:

To receive, control & distribute electrical power at 415V, 50Hz AC in a sheet steel housing. The variation in voltage is +/- 5% & frequency is +/-6%.

Design Requirement & Scope of Supply

Intelligent Motor control center is to be manufactured/ assembled as per the latest IS specification, Indian electricity rule, including special requirements of concerned state electricity Inspectorate & the detailed specification mentioned below.

Housing Details:

The IMCC will be Non-drow out type having top cable entry. The switchboard will be fabricated out of 2.0 mm (for load bearing members) & 1.6 mm (for doors & covers) sheet steel & will consist of freestanding front openable panels arranged to form a continuous line up of uniform height. Cold rolled sheet steels will be used for doors & front covers. Front doors will be hinged type. Busbar & cable alleys cover will be bolted type. Switchboard will be extensible at both the ends by addition of vertical section. Ends of the busbar will be suitably drilled for this purpose.
The switchboard will be totally enclosed dust, weather & vermin proof. Gaskets of durable material will be provided for door & other openings. Suitable hooks will be provided for lifting the boards. These hooks when removed will not leave any opening in the board. All hardware will be corrosion resistant. All joints & connection will be made by galvanized zinc passivated or cadmium plated high tensile strength steel bolts, nuts & washers secured against loosening
The switchboard will be in cubicle design (each feeder component is housed in individual cubicle). Suitable cable & busbar alley will be provided. All components of the switchboard will be approachable from front. The maximum & minimum operating handle/ pushbutton height of any feeder will not be more than 2050 mm or less than 250 mm with reference to panel bottom.
Supporting arrangement for dressing of power & control cable in cable alleys also will be provided. Maximum shipping length of MCC will be 2500mm.

Painting:

All metal surfaces will be thoroughly cleaned & degreased to remove all scales, rust, grease & dust. Fabricated structure will be prickled & treated to remove any trace of acid. The undersurface will be prepared by applying phosphate paint & a coat of yellow zinc chromate primer. The undersurface will be made free from all imperfections before undertaking the final coat. After preparation of the under surface, the panel will be powder coated shade RAL7032 textured finish of 50 micron & sheet steel fabrication shall be treated in seven tank cold treatment process before powder coated painting.The finish panels will be dried in stove ovens in dust free atmosphere, panel finish will be free from imperfections like pinhole, orange peels, run of paint etc.All unpainted steel parts will be cadmium plated or suitably treated to prevent rust corrosion etc.

Name Plate:

Three Ply bi colour plastic nameplates for all incoming & outgoing feeders will be provided on the doors of each compartment. Nameplates will be fixed by screw only. Special danger plate will be provided as per requirement. Inside panels, sticker will be provided for all components giving identification number as per detailed wiring diagram.

Busbar Sizing Connection & Supports:

The busbar will be made from high conductivity electrolytic aluminium conforming to grade E91E of IS 5082. The busbar & supports will be capable of withstanding rated & short circuit current. Minimum size of power busbar will be 200 amps rating. Maximum current density permissible for aluminium busbar will be 0.8-amps/ sq. Mm. An earthing busbar of minimum 150 sq. mm section aluminium will be provided at bottom throughout the length of the panel.The busbar will be provided with heat shrinkable insulating sleeve, supports for busbar will be made of suitable size, heavy duty SMC & this shall be adequate in numbers so as to avoid any sag in the busbar. Busbars are black PVC sleeved. Red, yellow, blue bands will be provided at intervals to identify the respective phases. Black band is used to identify neutral. Minimum clearance between phase to phase will be 50 mm & that between phase to neutral/ earth will be 32 mm.The busbar will be capable of carrying 1.25 times the load connected to that particular bus.

Power Connection :

Flexible Copper wires of adequate cross section will be used up to 100 Amp. Cable lugs/ sockets of suitable size & type will be used for interconnections. Aluminium busbar strips of adequate rating will be used for current rating of above 100 amps. For aluminium to copper connections the copper surface will be silver-plated & the aluminium surface will be properly cleaned & supplied with oxide inhibiting grease. For incoming & outgoing feeders of IMCC, aluminium cables will be used & hence the panel is to be designed for receiving these & wherever required, cable boxes with busbar extension for receiving more number of cables will be provided in panel by supplier. Removable gland plate will be provided for cable entries. To prevent accidental contacts all interconnecting cables/ busbar & all terminals also shall be shrouded. Standard color code of red, yellow & blue for phases & black for neutral to be followed for all busbar/conductor.

Auxiliary Wiring & Terminals :

Wiring for all controls, protection, metering, signaling etc. inside the switchboard will be done with 650 volts Grey color PVC insulated copper conductor. Minimum size of these conductors will be 1.5 sq. mm. Control wiring to components fixed on doors will be flexible type. The complete panel shall be of cubical design & will have its own control circuit with fuse & indication. Terminal block (minimum 3 ways) for control wiring will be provided for each outgoing motor feeder in its cubical. 10% spare terminal will always be available in each terminal block. All control wiring shall be provided with necessary cable sockets/ lugs at both ends. Conductors will be terminated using compression type lugs. Each termination will be identified at both the ends by PVC ferrules. The identification terminal numbers shall match with those in the drawing. Control wiring for motor feeders shall be such that green light for motor feeder is ON only when control as well as power circuit of feeder is ON & it will have its own fuse. For all motor starter feeders provision for control wiring to remote ON/OFF control through ICP is to be provided. The auxiliary wiring for the same will be brought up to terminal blocks in the feeder cubicle. 240V AC auxiliary supply will be tapped from incoming side of incomer. 240V AC panel space heater supply will be tapped from incoming side of incomer. Panel space heater will be mounted in cable alley of each panel. Each space heater will have 1 number thermostat, 1 number single pole toggle switch, 1 number 2A fuse & 1 number neutral link. All wires used for auxiliary circuit are flexible grade 1100/660v.

All power switches are provided with door interlocking and padlocking facility in off & on position.
Reset cord with actuator at front door will be provided with thermal overload relay.
For all 63 amps outgoing feeder the cable will be 4 square mm aluminium.
For all 630 amps outgoing feeder the cable will be 2 numbers 400 square mm aluminium.

Air circuit breaker:

These will be motor operated drow-out type suitable for 415 V, 50Hz supply. The ACB will have suitable built in solid state/ microprocessor based protective device with all accessories. Current rating, short circuit current, protection relays etc. will be provided. Mechanical interlock will be provided such that the ACB feeder cubical door can not be open when ACB is ON. All accessories such as 6 NO/6 NC auxiliary contact, safety shutter, door interlocking, locking in isolated position, racking interlock will be provided.

Moduled case circuit breaker:

MCCBs will be manual type provided with operating handle mechanism and door interlocking. The MCCBs will be with triple pole construction arranged for simultaneous three pole manual closing or opening & automatic instantaneous tripping on short circuit. Closing mechanism will be quick make & quick break & trip free type & will give a clear indication ON, OFF & TRIP indication. Control voltage for MCCB will be 240 volts. Fault rating of MCCB will be minimum 35kA.

Switches:

Switches will be load break, heavy duty, air break having continuos maximum rating type with manual quick make & break mechanism. Mechanism will be provided to prevent opening of door in switch closed position & prevent closing of switch in door open position. However it shall be possible to defeat this arrangement for testing purpose.

Pushbutton:

Push buttons will be complete with actuator & contact block & will be generally mounted on doors of the cubicle. Colors will be as follows.

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

It shall have minimum 1NO+1NC contact. Pushbutton will conform to IP-65 protection against dust & water ingress.

Indication lamp:

All outgoing & incoming feeders will be provided with on indication lamps. Colors will be as under.
Phases : Red, yellow, blue
ON : Red
OFF : Green

Tripped : Yellow

Indication lamps will be in the form of cluster of high intensity light emitting diodes (LED) to give bright indication.

Current transformer:

CTS will be cast resin insulated type primary & secondary terminals will be marked indelibly. CTS will preferably be mounted on stationary parts. These will be capable of withstanding momentary short circuit current for 1 second. Neutral side of CTS will be earthed.
Common protection class CTS have been offered for microprocessor based relays for protection & metering.

Special Requirement:

All motor feeders will have VFD or Soft starter at suitable rating and each feeder should have local start/ stop, Reset push button , Auto / manual switch.

All motor feeders will be provided with suitable breaking capacity.

For incoming feeder of rating higher than 400 amps. ACB will be provided unless stated otherwise.

If the outgoing feeder rating is higher than 100 amps, Manual MCCB will be provided unless stated otherwise & preferably this will be located at the lower portion of the panel. These feeders will also have isolating link for neutral.

Electrical interlocking will be provided between various feeders as required by the process.

6.9.2 LT power & control cables

Quantity : 1 Lot

General specifications

Power Cables:

Applicable standards:

Cables will comply, as a minimum, with the latest issue including all parts, revision and addends as on the date of the contract of Indian Standard.

Operating Conditions:

All cables shall be suitable for laying in open air exposed to natural elements and in trenches and underground buried installation with uncontrolled backfill and possibility of flooding by water. The outer sheath shall be resistant to attack by vermin and rodents. Special treatment will be given to make the cables rodent proof.

Temperature rise:

For the ambient and operating condition specified above, the combination of ambient temperature and temperature rise due to load will result in a steady conductor temperature not exceeding 70^0 C.

Material Specification:

Conductor:

The conductor will be composed of aluminium/copper wires complying with IS 8130. The conductor will be without joints. The conductors for nominal cross sectional area up to 10-sq. mm will be solid, those greater than 10-sq. mm will be stranded. Conductors of nominal cross sectional area less than 25 sq. mm will be of circular shape whereas those greater than 25 sq. mm and above will be of sector shaped.

Insulation:

Cable insulation will be of PVC compound as per IS 5831. It will be extruded so that it fits closely on the conductor and it will be easily possible to remove it without damage to the conductor. Minimum insulation thickness as well as tolerance will be as per IS 1554 (Part I).

Core Disposition:

Cores will be identified by the color of their PVC insulation with different color for each core as per IS 1554. The cores will be laid up together with a suitable lay. The outermost layer will have right hand lay and successive layers will be of opposite lay. Wherever necessary, core interstices will be filled up with non-hygroscopic material

Inner Sheath:

Inner sheath will be of type ST-1 PVC compound as per IS 5831 and will be of black color. The inner sheath will be so applied that it fits closely on the laid up cores & this will be as circular as possible. It will be possible to remove the inner sheath without damaging the insulation. The thickness of the inner sheath will be as per IS 1554.

Armouring:

Armouring will be of either galvanized round steel wire/steel strip as per IS 3975. Armouring will be applied as closely as possible over the insulation in case of single core cable and over the inner sheath in the case of multi-core cables. The direction of lay of the Armour will be left hand and the Armour will consist of galvanized round / flat steel wires of dimensions as per IS 1554.

Outer Sheath:

The outer sheath will be of PVC compound confirming to the requirement of type ST-1 as per IS 5831. Rodent/termite proof treatment will be given to the outer sheath of the cables. The outer sheath will be applied by extrusion over the

armouring. The color of the outer sheath will be Grey for copper cable & black for aluminium cable.

Identification:

The manufacturer's name or trade mark, cable size with type of cable will be either indented, printed or embossed on the outer sheath of the cable along the length of the entire cable at regular intervals.

Packing:

The cable will be packed in drums in continuous lengths.

b) Control Cable:

Applicable standards:

Cables will comply, as a minimum, with the latest issue including all parts, revision and addends as on the date of the contract of Indian Standard.

Operating Conditions:

All cables shall be suitable for laying in open air exposed to natural elements. The outer sheath shall be resistant to attack by vermin and rodents.

Temperature rise:

For the ambient and operating condition specified above, the combination of ambient temperature and temperature rise due to load will result in a steady conductor temperature not exceeding 70^0 C.

Material Specification:

Conductor:

The conductor will be composed of stranded annealed high conductivity copper wires complying with IS 8130. The conductor will be stranded. Nominal cross sectional area of each conductor will be as specified in cable quantities without any joints. For signal cable Pairs/ Triads will be formed uniformly twisting together two insulated conductors.

Insulation:

Cable insulation will be of PVC compound as per IS 5831. It will be extruded so that it fits closely on the conductor and it will be easily possible to remove it without damage to the conductor Minimum insulation thickness as well as tolerance will be as per IS 1554 (Part I).

Core / Pair Disposition:

The cores will be laid up together with a suitable lay. The outermost layer will have right hand lay and successive layers will be of opposite lay. Wherever necessary, core interstices will be filled up with non-hygroscopic material.

Binder Tape (for instrument signal cable):

A non-hygroscopic tape of minimum thickness 0.023-mm will be applied over the final layer with 50% overlap & offering 100% coverage.

Collective screen (for instrument signal cable):

A laminated screen tape will be applied with the metallic side down in electrical contact with the longitudinally run collective drain wire. The laminated tape will be AI foil having thickness of 0.08 mm & maximum pitch of 50 mm.

Inner Sheath:

Inner sheath will be of type ST-1 PVC compound as per IS 5831 and will be of black color. The inner sheath will be so applied that it fits closely on the laid up cores & this will be as circular as possible. It will be possible to remove the inner sheath without damaging the insulation. The thickness of the inner sheath will be as per IS 1554.

Armouring:

Armouring will be of either galvanized round steel wire/steel strip as per IS 3975. Armouring will be applied as closely as possible over the insulation. The direction of lay of the Armour will be left hand and the Armour will consist of galvanized round steel wires of dimensions as per IS 1554.

Outer Sheath:

The outer sheath will be of PVC compound confirming to the requirement of type ST-1 as per IS 5831. The outer sheath will be applied by extrusion over the armouring. The color of the outer sheath will be Grey for control cable & blue for instrument signal cable**.**

Identification:

The manufacturer's name or trade mark, cable size with type of cable will be either indented, printed or embossed on the outer sheath of the cable along the length of the entire cable at regular intervals.

Packing:

The cable will be packed in drums in continuous lengths

6.9.3 Earthing system

General specifications:

Earthing Strips:

The earthing strips will be of MS as per IS 2062. The MS strips will undergo surface treatment like de rusting, degreasing before being processed for hot dip galvanizing. The thickness of galvanizing will be minimum 85 microns generally as per IS 2633.

Earthing Plate For Pit:

Each set will consist of following
One number of 600mm X 600mm X 6thick plate
One number of 50-mm diameter, 900 mm long GI pipe along with 80mm X 50mm GI funnel (made out of concentric reducer) & GI mesh.
One number of 300mm X 300mm X 10 thick CI hinged, lockable cover.

Sr. no	Item	Application
1	25 mm x 6 mm hot dip galvanized strip	Switch Board, Earth Ring
2	25 mm X 3 mm hot dip galvanized strip	YD motor
3	8 SWG GI wire	DOL motor
4	14 SWG GI wire	PBs & isolator

system, copper earthing will be used. The earth pits and earthing system of instrumentation, computers and controls shall not share the earthing system of electrical power equipment.

Utility , Automation , Instrument and Electrical Equipments .

Clause No.	Item Description	Capacity	Qty.	Unit
1	**Water Distribution System**			
1.1	Chilled Water Pipes, Valves & Fittings	Suitable	1	Lot.
1.2	Raw Water Pipes & Fittings	Suitable	1	Lot.
1.3	RO Water Pipes & Fittings	Suitable	1	Lot.
2	Compressed Air Pipes & Fittings	Suitable	1	Lot.
3	Plant Supporting Structure & Maintenance Platform etc.		1	Lot
4	**Automation System**			
4.1	PLC Based Control System		1	No.
4.2	Server		1	Lot.
4.3	Operator Work Station PC		2	Nos.
4.4	Printers		2	Nos.
4.5	Network hard ware		1	Lot
4.6	System Software		1	Set
4.7	UPS System for Automation, Instruments		2	Nos.
5	**Field Instruments, Control valves & Accessories.**			
5.1	Process Transmitter		1	Lot
5.2	Process Guage		1	Lot
5.3	Temperature Elements		1	Lot
5.4	Control Valves		1	Lot
5.5	Control Cables & Other Miscellaneous items like instrument H/W, Tubing & Conduits		1	Lot
6	**Electrical**			
6.1	Intelligent Motor Control Center		1	No.
6.2	LT Power & Control Cables		1	Lot
6.3	Earthing System		1	Lot

SECTION – V
SUB SECTION – 7
BATTERY LIMITS

BATTERY LIMITS AND SCOPE of SUPPLY :

Sr. No	Item Particulars	Purchaser Scope	Bidder scope
1	Utility		
A	Electrical Power	At single Point GEB Power 3 Phase and shall be made available at input of IMCC.	Scope starts from output of IMCC. Cable, Cable laying and termination in the scope. Supply , Installation, testing and commissioning and integration with main automation system of MCC with multifunction meter. All required earthing in the scope. Energy Data to be transfer to Main automation system for Report generation Purpose.
B	Compressed Air System	Compressed Air given at one point in the Amul-2 Ghee Plant Building	Complete Air Distribution system. Further distribution to required Point is in the scope of bidder. Air consumption Data to be transfer to Main automation system for Report generation Purpose.
C	Steam	Steam at 5 bar shall be made available at single Point.	Steam Distribution scope starts from outlet Point available at new plant building. Further distribution to

			required Point is in the scope. Necessary Instruments , control and steam traps in the scope. steam consumption Data to be transfer to Main automation system for Report generation Purpose.
D	Water	Raw Water and RO water shall be made available at one point in the Amul-2 Ghee Plant.	Scope starts from outlet point available at section. Further distribution of all types of water from outlets of the respective Hydro-flow systems to all process and return lines to utilities sections is in the scope. Integration with main automation system for MIS & monitoring purpose is in the scope Necessary Instruments , control valve , NRV and isolation valves in the scope. Water consumption Data to be transfer to Main automation system for Report generation Purpose.
E	Chilled Water	Chilled Waterr shall be made available at one point in the Amul-2 Ghee Plant.	Scope starts from outlet point available at section. Further distribution is in Bidders Scope

3	Hot and cold Insulation of All Line with cladding.		All Line wherever Hot and cold Insulation required is in the scope.
4	Structural / Pipe Bridge & supports		All necessary approach platform & ladders wherever required in the scope. railings, in SS-304 construction shall be provided. All pipe line supports for product lines/cable trays inside the plant shall be constructed from SS-304 box sections shall be provided.

Makes of Bought out Items

Description	Makes
Rotary type lobe Pump	OMAC / ALFA LAVAL / FRISTAM
PHE	GEA-ECOFLEX /APV / ALFA LAVAL / IDMC /
EPS / PUF Insulation Materials	LLOYDS / BEARDSELL / FRICK/
Saddles for Cold Insulation	SUPERTHERM (LLOYD) / BEARDSELL
Resin bonded mineral wool	LLOYD / UP TWIGA / ROCKWOOL
Tank Agitator (Top Mounted)	STELZER / ALFA LAVAL (IMPORTED) / EQUIVALENT
INSTRUMENTATION, CONTROLS & AUTOMATION	
VFD	YASKAWA / SIEMENS / DANFFOSS
Level Transmitter & indicator	E&H / EMERSON / SIEMENS
Temperature / Pressure Transmitter	E&H / EMERSON / SIEMENS / INOR / RADIX
RTD	E&H / EMERSON / SIEMENS / RADIX
Flow Switch	DANFOSS / SWITZER / IFM, GMBH / HONEYWELL / JOHNSON
Level Switch (float type & vibrating fork type)	E&H / EMERSON / SIEMENS
Vortex / Magnetic Flow meter	E&H / EMERSON
Mass Flow meter	E&H / EMERSON
Control Valve	DEMBLA / SAMSON / SCHUBERT & SALZER
Pressure switch / Temp. switch / Thermostat	DANFOSS / ALCO / HANSEN / PARKER / AMERICAN SPECIALITIES, USA/ SWITZER / INDFOSS
Pressure & Temperature Gauge	FIEBIG / PRICO /GIC / WIKA / BAUMER
Dual type Pressure / temp gauges	FIEBIG /PRICOL /GIC / WIKA / BAUMER
Load Manager / Power / Energy Monitor	ROCKWELL /SIEMENS / ABB / SCHNEIDER

PC (Personal Computer)	COMPAQ/HEWLETT-PACKARD/IBM LENEVO/ ACER / DELL
DCS/ PLC System	SCHNEIDER /SIEMENS / ALLEN BRADLEY
ELECTRICALS	
Electric Motors	SIEMENS / CROMPTON / ABB
Air Circuit Breaker	SCHNEIDER /ABB / SIEMENS
MCCB	SCHNEIDER / MDS-LEGRAND / SIEMENS / ABB
Starter Overload Relays	SIEMENS / ABB / SCHNEIDER
Intelligent Motor Protection Relays	SIEMENS / ABB / SCHNEIDER / ROCKWELL
Timers Electronic	L&T / SIEMENS / ABB / SCHNEIDER
Switch Fuse Units	ABB / SCHNEIDER / SIEMENS
MCBs	LEGRAND / SCHNEIDER / SIEMENS / HAGER
Push Buttons	TEKNIC / ABB / SCHNEIDER / GE
Indicating Lamps (LED)	TEKNIC /L&T / SCHNEIDER
Digital Ammeter & Voltmeter	CONZERV / MECO / HPL SOCOMEC / RISHABH
Digital Energy Meter	SIEMENS
PVC Conduit & accessories	PRECISION / CLIPSAL / P – PLAST / POLYCAB
Power Factor Meter	RISHABH / AE
Programmable Protection Relay	MINILEC/ CONZERV
Current Transformer	KAPPA / MECO / AE / IMP / INDCOIL / BHARTI
LT Power Cables	GLOSTER/POLYCAB / RR / FINOLEX / CCI
LT Copper Control Cables	POLYCAB / RPG ASIAN / FINOLEX / RR KABELS (UNILAY) / POLYCAB/CONCAB
Signal & Instrument cable	FINOLEX /POLYCAB / ICON

Power Capacitors	EPCOS / SCHNEIDER / KHATAU JHANKAR / SIEMENS / UNISTAR / L & T
APFC Relay	SCHNEIDER /BELUKE / EPCOS / L&T / PHASITRON/ SIEMENS
Cable Tray	INDIANA / MEK / PILCO / ELCON / METALICA PRESSINGS / POWER CONTROLS / SILVER LINE
Isolating Switches	SIEMENS / L&T / ABB / SCHNEIDER
Plug & Socket	LEGRAND / CLIPSAL/ SCHNEIDER / BCH / HENSEL
Terminal Blocks	WAGO / CONNECT WELL / ELMEX
Rotary Selector Switch	KAYCEE / SALZER / L&T / SIEMENS
Cable Glands	COMMET / EX-PROTECTA / DOWELS / BRACKO
Cable Lugs	DOWELS / COMMET
Mechanical Interlock	L&T / SCHNEIDER / ABB
Electronic Soft Starter	DANFOSS / L&T/ SIEMENS / ROCKWELL (ALLEN BRADLEY) / SCHNEIDER / ABB
Servo Voltage Stabilizer	SUVIK / APLAB / NEEL / CRYCARD / DB ELECTRONICS
UPS	SIEMENS / EMERSON-LIEBERT / HI-REL / APC / APLAB / DB ELECTRONICS
SMF Battery	YUASA-ROCKET / FURUKAWA / EXIDE
VALVES & PIPES (MS & GI)	
Water Valves (Butterfly / Ball)	AUDCO / CIPRIANI / INTERVALVE / BDK / CRESCENT / FESTO / DELVAL
Non-return Valve for water	AUDCO / INTERVALVE / BDK / LEADER
Water Foot Valve	KIRLOSKAR / GG / LEADER
GI Pipes for water	TATA / JINDAL / / MST / ZENITH
MS Pipes for air, steam, condensate	TATA / JINDAL / KALYANI / MST
NRV for Air	INTERVALVE / AUDCO / LEADER

Solenoid Valve for Water line	DANFOSS / AVCON / ROTEX / BURKERT / ASCO/FESTO
Hot Water pipe/ Globe Valves	AUDCO / SPIRAX / ARMSTRONG, USA / BDK
SS PIPES & VALVES	
SS Pipes	RATNAMANI / BHANDARI FOILS & TUBES / APEX TUBES
SS seat type Pneumatic Valves	GEA TUCHENHAGEN / ALFA LAVAL/ APV
Pneumatic SS Butterfly / Ball type valves	GEA TUCHENHAGEN / ALFA LAVAL / APV
SS Manual Valves & Fittings	ALFA LAVAL / IDMC / CIPRIANI
AIR LINE FITTINGS	
Air lines accessories	SHAVO NORGEN / FESTO / LEGRIS / NUCON
Auto Drain Valve	ULTRA FILTER / ZANDER/HYDINT
MISCELLANEOUS ITEMS	
Geared Motor / Gear Box	PBL / POWER MASTER / ELECON / IC BAUER/ BON FIGOLIC / EURO DRIVES
Structural Steel	SAIL / TISCO / RINL / IISCO / ESSAR

Note: -

1) Additional makes proposed by the bidder is accepted but KDCMPUL reserves right to select any one of the makes from the above list

2) Since this will be Turnkey job it will be full responsibility of the bidder to carry out minor works necessary to achieve rated capacity of the plant even though they might not have been expressly mentioned in the tender document.

3) All the Equipment to be supplied will have to be manufacture as per standards Specification adopted by Indian dairy industry

SECTION – V
SUB SECTION – 8
TECHNICAL DEVIATIONS

8. Deviation From Technical Requirement

8.1. This tender document provides guidelines for the processes and equipment to be used in tender package and the "basis of design" and the "standards and specifications", define the qualitative parameters against which equipment will be required to perform.

8.2. It is incumbent on bidder to provide a fully detailed list of equipment and services, which they intend to provide a fully execute the contract inline with the tender document.

8.3. At various points in the tender the purchaser has stated that alternative processes or alternative equipment will be considered. The bidder as part of the bid document shall provide the fully detailed list of such alternatives, together with a consider rationale for employing such alternatives.

8.4. Items, which deviate from the tender proposal, shall be as per design specification of the bidder and shall be treated as a deviation from the text of this tender document. Deviated item should fulfill the minimum performance parameters as specified in the tender.

8.5. This tender does not allow bidders to make exclusions from any part of tender packages for which they bid, and an incomplete list of equipment or an incomplete schedule of services to be provided would be considered as a nonresponsive bid.

Table 3
Technical Deviation Statement Form

Sr. No	Clause Reference	Deviation	Remarks (Justification)

Above are the particulars of deviations from the requirements of the tender specifications. The technical specifications furnished in the bidding document shall prevail over those of any other document forming a part of our bid, except only to the extent of deviations furnished in this statement.

Date
Signature of Authorised Signatory of Bidder

NOTE:
Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations"

SECTION – V
SUB SECTION – 9
OPTIONAL ITEMS

9. Optional Items

9.1. All items mentioned in the tender packages or in the basis of design as optional items shall be quoted on the basis of equipment of the systems that are supplied "ready to pipe in ". The price for such items shall include supply, installation, commissioning and connections including all necessary piping, fitting, instrumentation, controls, utilities etc.

9.2. The entire system shall be designed with all provisions to include the optional items in such a way that no major changes would be required in the system. The provision shall be made in the system irrespective of whether these additional items are supplied or not. The specifications of optional items shall be the same as that of similar items mentioned in tender.

9.3. The cost of optional items shall not be included in the calculation of total bid price. In the event that the purchaser, for supply, selects optional items, the quoted price for the optional item shall include all incidental costs of installing that item as part of the contract.

SECTION – V
SUB SECTION–10
DRAWINGS, DATA AND DOCUMENTS

10. List of Drawings and Documents :

10.1. Following drawings are enclosed along with the tender:

10.1.1. Flow Diagram

10.2. The following drawings shall be enclosed with the offer by the bidder

10.2.1. Proposed machinery layout (plan) for the plant, floor wise including the sectional elevations showing the major equipment/feed piping. The drawing should also show staircase, platforms, walkways, ladders etc. and other details.

10.2.2. Product flow diagram including production equipment, service and production piping.

10.2.3. All drawings, data, histograms, etc provided by bidder shall be in soft copy format. Documents shall be in Microsoft word or excel. Drawings shall be in Auto CAD format.

10.2.4. The bid shall include general arrangement drawings for the individual equipment along with equipment specifications.

NOTES:Bidders may note that if successful, fabrication drawings of all equipment irrespective of whether stated separately or not shall be got approved by Client before fabrication.

10.2.5. Charts:

10.2.5.1. The following charts shall be enclosed along with the offer by all the Bidders :

10.2.5.1.1. Plant utilization chart for services (HISTOGRAMS).

10.2.5.1.2. Electrical Load diagram for on 24 hours basis.

10.2.5.1.3. Hourly equipment-wise service consumption data on 24 hours basis for steam, air etc.

10.2.5.1.4. Bar chart for Project execution including personnel training programme.

10.2.5.1.5. PERT chart**.**(Bar Chart/ Pert chart to be given after the PO has been Finalized)

10.2.6. Service consumption schedules for connected average and peak loads for all the equipments. The services to be considered are :-

10.2.6.1. Steam : in kg/hr.

10.2.6.2. Compressed air : in N.cu.m./min.

10.2.6.3. Power: in KWH.

10.2.7 Literature covering general and technical information for all equipment covered within the scope of the tender including relevant pages of operation and maintenance manuals.

10.2.8 List of spare parts with quantity, to be quoted on two years inventory basis along with price break-up.

10.2.9 Any other equipment/item which is not mentioned above but is required as per description in the text shall also be provided.

10.2.10 Any other equipment/item that the Bidder feels is necessary shall also be provided.

10.2.11 All makes purchased by bidder if successful shall be approved by client first and then only procurement of such items shall be done.

SECTION – V
SUB SECTION – 11
TECHNICAL EVALUATION OF BIDS.

11. Technical Evaluation of Bids

11.1. The purchaser will evaluate and compare the technical merits of the bids based on the information supplied by the bidders taking into account the following factors.

11.1.1. Suitability of the process with regard to ultimate product quality conforming to the standards specified in this section of the tender.

11.1.2. Specifications of individual equipments as well as the system as a whole for material of construction, throughput, operating parameters, level of automation, extra features, latest design, ease of maintenance etc.

11.1.3. Energy efficiency of individual equipment and system as a whole.

11.1.4. Completeness of submitted bid with respect to all information, data, details and documents asked for.

11.1.5. The evaluation of the tender will be on a lump sum basis and the unit rates asked for will be operable only for any additions/deletions.

SECTION – V
SUB SECTION–12 PROCESS PERFORMANCE AND GUARANTEE

12. Process Performance & Consumption Guarantee

12.1. If the plant or any part thereof does not give the agreed process performance and consumption guarantees during the warranty period due to reasons attributable to the bidder, the action shall be as below

12.1.1**. Equipment Performance.**

12.1.1.1. The satisfactory performance for the equipment/ production plant (the bidding Package) will be considered achieved if the plant operates at 100% of the rated capacity declared by the bidder in the bid documents.

12.1.1.2. If performance is between 98% and 99% of rated capacity, penalty will be calculated at 2% of Rs value of the contract per 1% of shortfall.

12.1.1.3. If performance is below 98% the bidder 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. All given utility consumption to be inline.

12.1.2. **Service Requirements.**

12.1.2.1. If measured demand of service in any bidding package of the plant is less than 102% of the consumption declared by the bidder, the buyer will accept that service requirements guarantees have been achieved.

12.1.2.2. If the requirement of any services of the plant is between 102% and 105% of the declared demand, penalty will be charged at 2% for every 1% rise in consumption for each of the services which falls in this category of excessive demand. For the purpose of this calculation, only the main services, steam, power, and compressed air will be considered.

12.1.2.3. If the measured demand for services and energy is above 105%, the bidder will be required to upgrade the plant or replace the plant to comply with the declared performance criteria. Otherwise the plant will be deemed unacceptable.

12**.1.3. Maximum Liability**

12.1.3.1. The maximum liability of bidders on all counts of penalties including above, Liquidated Damages clause and other liabilities of any kind shall not exceed 10% of Contract value over and above the liquidated damage clause.

SECTION – V
SUB SECTION – 13
BIDDERS MEETING.

13. Bidders Meeting

13.1. Details of the proposed pre-bid meeting are contained in instruction to bidders section- II. This will be a general meeting at which all purchasers of the tender document may attend.

13.2. Bidders may also request technical discussions with the KDCMPUL / clients project team before the tender closing date. Subjects for discussion at the technical meeting may include:

1. Project management
2. Technical clarifications
3. Scope of supply
4. Concept of the design
5. Processes
6. Equipment designs
7. Equipment bidders
8. Automation
9. Plant management
10. Quality control
11. Existing equipment to be utilized in the job
12. Battery limits
13. Acceptable alternatives
14. Equipment bidders

This will be the only opportunity for bidders to discuss the project in detail with KDCMPUL before the commercial bid opening, and all technical matters should be resolved at meetings.

SECTION – VI
BIDDING TERMS DEVIATION

Bidding Terms Deviation Statement Form

Sr. No	Clause Refers	Deviation	Remarks (Justification)

Above are the particulars of deviations from the requirements of the tender specifications. The technical specifications furnished in the bidding document shall prevail over those of any other document forming a part of our bid, except only to the extent of deviations furnished in this statement

Date

Signature of Authorised Signatory of Bidder

NOTE: Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations".

SECTION – VII
BID FORM AND PRICE SCHEDULE FORM

BID FORM & PRICE SCHEDULE

(To be furnished in the letterhead of the company)
Date
To ,

Dear Sirs,
Sub:
Ref:
Having examined the Bidding Documents, including the Addendum _____we, the undersigned, offer to supply and / or supply and deliver Goods and Services including installation and commissioning as detailed in the price schedule, in conformity with the said Bidding Documents including the technical specifications and drawings (except to the extent of deviation statement furnished in our bid) and the Conditions of Contract as mentioned in or referred to therein for the sum of:

or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this bid and the said conditions.

We accept all the conditions of the Bidding Document in this Bid Form and this acceptance shall prevail over any other conditions, if any, given in our Bid.

We undertake, if our bid is accepted, to commence and complete delivery of all the Goods and Services as specified in the Schedule of Requirements of the Bid Document, from the date of receipt of your purchase Order/Notification of Award.

If our bid is accepted we will obtain the bank guarantee as per the conditions of the Contract for the due performance of the Contract.

We agree to abide by this bid for the period of 90 days from the date fixed for bid opening and it shall remain binding upon us and may be accepted any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your Purchase Order / Notification of Award of Contract (NOAC), shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive. Dated this day of 2016.

Duly authorized to sign bid for and on behalf of Name of witness:

Price Schedule Form

Summary Sheet

Sr. No	Summary Heads	Amount
1	2	3
1	Total Ex-factory, Packed	
2	Total Excise Duty	
3	Total Sales Tax/ WCT	
4	Transportation	
5	Insurance	
6	Total Supply Price delivered at ite (1+2+3+4+5)	
7	Total Installation & Commissioning	
10	Service Cover	
11	Spares for 2 years of normal operations	
	Total Bid Price (6+7+8+9+10+11)	

Notes:

1	Bid must be submitted strictly as per this pro forma (Summary Sheet and items break up sheet)
2	Amount against Sr. No 1 to 3 & 7 must be the total worked out in items break-up sheet
3	Please quote charges for transportation (Sr. no 4) and insurance (Sr. no 5) as a percent of ex-factory, packed (Sr. No 1)

Signature of Authorized Signatory of Bidder

TENDER FOR BUTTER TUB PACKING MACHINE, CHEESE BLISTER PACKING MACHINE AND GHEE PLANT, AMUL DAIRY, ANAND

ITEMWISE PRICE BREAK-UP SHEET

S.NO.	QTY.	UNIT	ITEM DESCRIPTION	#EX-WORKS Packed		INLAND FREIGHT & INSURANCE		CEILING ON WHICH EXCHANGE RATE & CUSTOM DUTIES VARIATION APPLICABLE		NSTALLATION & COMMISSIONING		TOTAL
				UNITPRICE	TOTAL	%	Value	C&F VALUE	CURRENCY	%	Value	(16=6+8+12)
(1)	(2)	(3)	(4)	(5)	(6=2 * 5)	(7)	(8=6 *7)	(9)	(10)	(11)	(12=6 *11)	
			TOTAL									

Inclusive of Custom Duty, Excise Duty & Sales tax / WCT(In Words Rupees ---------- only)

SECTION – VIII
QUALIFICATION APPLICATION

Qualification Application Form

You must submit this form (Table 2 and 3), duly filled in, along with the supporting as per following checklist given in Table

Table 1 **Checklist for Supporting**	
Supporting Required	**Please (√)**
Latest Balance sheet filed with (Name of Authority) on (Date)	
Latest Profit & Loss Statement **from (**date**) to (**date**)** filed ith (Name of Authority) on (date).	
Audited copies 1of annual accounts and P & L account of **past 3 years**	
Certificate of Financial Soundness from Bankers of dder/Bidders	
Income Tax Clearance Certificate (Latest)	
Sales Tax Clearance Certificate (Latest)	
Details of Income Tax Registration	
Details of Sales Tax Registration	
Organization Chart	
Annual Report of last three years	

Indigenous Bidders must attach copy of accounts audited under section **44 AB of Income Tax Act**. In case the accounts need not be audited, a Charted Accountant or Manager of a Nationalized Bank should attest thein formation in this statement.

Table 2
Financial Soundness

General Information			
Name			
Address			
Phones			
Mobile			
Fax			
E-mail			
Contact Personnel with designation			
Financial Information			
Sr. No	**Description**		**Value(Rs)**
1	**Cash Balance**	In Bank	
		In Hand	
		Total	
2	**Fixed Assets**	Gross	
		Net	
3	**Current Assets**	Inventories	
		Others	
		Total	
4	**Current Liabilities**	Bank Cash Credit	
		Sundry creditors	
		Sundry creditors	
		Provisions	
		Contingent Liabilities (including claims not acknowledged, please specify)	
		Total	
5	**Capital**	Share capital	
		Free reserves	
		Other reserves (please specify)	
6	Term loans from financial institutions and banks		
7	Working capital		
8	Net worth		

9	Debtors and advances considered good	More than 6 months	
		Less than 6 months	

Significant Financial Ratios			
Sr. No	**Ratio**	**Definition**	**Value**
1	Current	Current Assets to Current Liabilities	
2	Acid Test	(Cash + temporary investment held in lieu of cash + current receivable) / current liabilities	
3	Solvency	Total Liability to Net Worth	

Net Profit before Tax Sr.		
Sr. No	**Period**	
1	Current period	
2	During the last Financial Year	
3	During the year before last Financial Year	

Financial Arrangements		
Sr. No	**Resources**	**Amount**
1	Own	
2	Bank Credits	
3	Others (Specify)	

Sales			
Sr. No	**Category of Customers**	**Value of orders to be executed/ anticipated Sales**	
		Current	**Next Financial Year**
1	Government Department		
2	Commercial		
3	Others		
	Total		

Annual Turnover		
Sr. No	**Financial Year (Please begin with current year)**	
1		
2		
3		
4		
5		
6		

Rate Contracts for the items to be supplied			
Sr. No	**Organization**	**Items**	**Valid till**
1	Directorate General of Supplies & Disposal, Government of India.		
2	National Cooperative Consumers' Federation of India Ltd		
3	Kendriya Bhandar		
4	Central Equipment Stores Purchase Organization for State Governments		
5	GCMMF		
6	Others		

Table 3		
Technical Competency		
Classifications		
Sr. No	**Category**	**Please (√)**
1	Manufacturer	
2	Clearing & Forwarding Agent	
3	Stockist	
4	Wholesale Dealer	
5	Authorized Reseller	
6	Authorized Service Agent	
7	Retailer	
8	Trader	
9	Others (please specify)	
Details on Plant		
Sr. No	**Plant**	**Details**
1	Location	
2	Description	
3	Type	
4	Size of building	
5	Is property on lease or free hold?	
6	If on lease, indicate date of expiry of ease in each case.	
7	Others (please specify)	

Plant Facilities			
Sr. No	**Facilities**	**Ans**	**Remark**
1	Space available for manufacturing (in m2)		
2	Space available for storage (in m2)		
3	Space available for inspection (in m2)		
4	Are buildings fire resistant? (Y/N)		
5	Are premises approved by Municipal fire Department? (Y/N)		
6	Are buildings under Municipal fire protection? (Y/N)		
7	Are power & fuel supply adequate to meet production requirements? (Y/N)		
8	Are adequate transportation facilities available? (Y/N)		
9	Are safety measures adequate for performance of proposed contract? (Y/N)		
10	Is adequate material handling equipment available? (Y/N)		
Testing Facilities			
Sr. No	**Facilities**		
1	List testing equipment available		
2	Give details of tests to be carried out on items offered.		
3	Details of the testing organizations available.		
Quality Control Organization			
Sr. No	**Quality Control Method**	**Response**	
1	Are goods offered subject to Batch Test, Random Sampling or full 100% test for quality?		
2	Are tests carried out by factory employees or by a separate testing agency?		
3	Are independent Quality Control Organization checks made and certificates issued?		

Manufacturing Capacity					
Sr. No	**Description of Equipment**	**Capacity**	**Units Manufactured**		
			Current year	**Last Year**	**2nd last year**
1					
2					

Personnel/ Organization				
Sr. No	**Personnel in**	**Numbers in levels**		
1	Production	**Managerial**	**Supervisory**	**Skilled Workmen**
2	Marketing			
3	Installation and commissioning			
4	Service			
5	Spare parts			
6	Administrative			

Service Centre nearest to our site location		
Location		
Phone no		
Sr. No	**Information required on**	**Details**
1	Number of skilled employees	
2	Number of unskilled employees	
3	Number of engineering employees	
4	Number of administrative employees	
5	List of special repair/ workshop facility available	
6	The storage space available for spare parts (in m2)	
7	Value of minimum stock of spares available at all the service centres in respective currency	
8	List of the models/ types of equipment serviced by the Centre in last 2 years	

References						
Sr. No	**Name of Organization**	**Address, Telephone, Fax, Contact Person**				
1						
2						
List of components usually subcontracted						
1						
2						
Workload for the current and forth coming financial year on quarterly basis						
Sr. No	**Financial Year**	**Quarterly Workload as % of Total Capacity**				
1	Current Financial Year	**I**	**II**	**LII**	**IV**	
2	Next Financial Year					
List of major projects of similar size and nature previously executed						
Sr. No	**Name of the client**	**Project**	**Year of award**	**Year of completion**	**Capacity/ Products**	**Value (Currency)**
1						
2						
3						
4						
Type of equipment manufactured and supplied (M & S) during last 2 years						
Sr. No	**Equipment**	**Capacity**	**Qty**	**Projects**	**On Hand Order Qty**	
1						
2						
3						

Names of two buyers to whom similar equipment are supplied, installed and commissioned in the past and to whom reference may be made by the KDCMPUL regarding the Bidder's technical and delivery ability:

Type of equipment manufactured, supplied, installed and commissioned (MSIC)					
Sr. No	**Equipment**	**Capacity**	**Qty**	**Projects**	**On Hand Order Qty**
1					
2					
3					
4					
Schedules for furnishing technical data and certified drawings after receipt of orders					
1					
2					
Number of weeks required for preparing a bid proposal					

SECTION – IX
COLLABORATOR'S AUTHORISATION

Collaborators' Authorization Form

Reference **Dated**

Managing Director
Kaira District Co-operative Milk Producers' Union Limited.
Amul Dairy
Anand – 388 001
Gujarat

Dear Sir,

Bid Reference: P&E/AMUL/ANAND/PLANT MACHINERIES/2016-17

We, (Name of the Collaborator), an established and reputable bidder of Technology and goods (Name of Technology & Goods) do hereby authorize (Name and address of **Agents**) to bid, negotiate and include the contract with you against Bid Reference: P&E/AMUL/ANAND/PLANT MACHINERIES/2016-17 for the above technology & goods supplied by us.

No company or firm or individual other than (Name of your sole agent/ distributor) are authorized to bid, negotiate and conclude the contract in regard to this business against this specific Bid. (Strike out this, if not applicable)

We hereby extend our full guarantee and, warranty for the technology and goods offered for supply against this invitation for bid by the above firm.

Yours faithfully,
(NAME)
For and on behalf of

(Name of Manufacturers)Note:
This letter of authority should be on the Letterhead of the Collaborators' concern and should be
signed by a person competent and having the power of attorney to bind the Bidder.

APPENDICS – I

Contents

Form of BG for Performance Security (On the Non-Judicial Stamp Paper as per the Stamp Act of State Government)

Bank Guarantee Number Date:

This deed of performance guarantee made this _____ day of 20--- (Two thousand __) by (Name and address of the Bank) (herein referred to as the Bank) which expression shall unless repugnant to the context and meaning thereof includes its legal representatives, successors and assignees and the **Kaira District Co-operative Milk Producers' Union Limited.**(hereinafter referred to as the KDCMPUL) which expression shall unless repugnant to the context and meaning thereof include its legal representative, successors and assignees.

Whereas, KDCMPUL /its clients has awarded a Contract and Purchase Order bearing Number __ dated _____ on (Name and address of the party) (hereinafter referred to as the `Bidder') for the supply/ supply and erection and commissioning of __. And whereas, the Bidder has agreed to submit a performance guarantee in the form of a Bank Guarantee to the KDCMPUL in terms and conditions of the Bidding Document and the Contract which will be kept valid up to __ calendar months from the date of Bank Guarantee (the period should be till end of warranty period). And whereas, the Bank and its duly constituted agent and officer has already read and understood the contract made between the KDCMPUL and the Bidder / Bidder.

In consideration of the KDCMPUL having agreed to award the contract/purchase order on the Bidder, we, (name of the Bank), do hereby guarantee, undertake, promise and agree to with the KDCMPUL, its legal representatives, successors and assignees that the within named (name of the Bidder) their legal representatives and assignees will faithfully perform and fulfill everything within the Bidding Document and the Contract/Purchase order on their part to be performed or fulfilled, at the time (time being the essence of the contract) and in the manner therein provided, do all obligations there under and we further undertake and guarantee to make payment to the KDCMPUL of Rs _ (Rupees __ only) being the 10% of the contract value, without any demur in case the Bidder, their legal representatives and assignees do not faithfully perform and fulfill everything within the Bidding Document and the Contract/Purchase order on their part to be performed or fulfilled, at the time and in the manner therein provided and do not will fully and promptly do all obligations there under.

In case, the Bidder fails to perform or fulfill the Contract/ Purchase Order as per the terms and conditions agreed upon, the KDCMPUL is entitled to demand an amount equal to 10% of the Contract value from the Bidder and the demand made by the KDCMPUL by itself will be conclusive evidence and proof that the Bidder has failed to perform or fulfill his obligations and neither the Bidder nor the Bank will be entitled to raise any dispute regarding the reasons for the failure of performance or fulfillment, on any ground.

We, (name of the Bank), do hereby undertake to pay an amount equal to 10% of the order value, being the amount due and payable under this guarantee without any demur, merely on a demand from the KDCMPUL which has to be served on us before the expiry date of Bank Guarantee i.e. --/--/-- stating that the amount claimed is due by way of non-performance of the contractual obligations as aforesaid by the Bidder or by reason of the

Bidder's failure to perform the said contractual commitments/Purchase Order, any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs -- (Rupees _ only) being the amount equal to 10% of the total order value.

We, (name of the Bank), further, agree that the performance guarantee herein contained shall remain in full force and effect for a period of -- calendar months from the date of Bank guarantee (the period should be till end of warranty period) and till the KDCMPUL certifies that the terms and conditions of the said contract/ purchase order have been fully and properly carried out by the said Bidder and accordingly discharge the guarantee, unless a demand or claim under this guarantee is made on us in writing by the KDCMPUL on or before _ , we shall be discharged from all liabilities under this performance guarantee thereafter.

We, (name of the Bank), further agree with the KDCMPUL that the KDCMPUL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bidding Document and the Contract/Purchase order or to extend the time of performance by the said Bidder from time to time or postpone for any time or from time to time and any of the power exercisable by the KDCMPUL against the Bidder and to forebear or enforce any of the terms and conditions relating to the said Bidding Document and the Contract/Purchase Order and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Bidder, or for any forbearance, act or omission on the part of the KDCMPUL to the said Bidder by any such matter or thing whatsoever which under
the law relating to sureties would but for this provision have effect of so relieving us.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the KDCMPUL may have or hereafter possess in respect of the goods supplied or intended to be supplied and the KDCMPUL shall be under no obligation to marshal in favor of the Bank any such securities or funds or asset that the KDCMPUL may be entitled to receiving or have a claim upon and the KDCMPUL at its absolute discretion may vary, exchange, renew, modify or refuse to complete to enforce or assign any security or instrument.

The Bank agrees that the amount hereby guaranteed shall be due and payable to the KDCMPUL on serving us with a notice before expiry of bank guarantee, requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by Registered Post at the address of the Bank.

In order to give full effect to the provisions of this guarantee the Bank hereby waives all rights inconsistent with the above provisions and which the Bank might otherwise as a guarantor be entitled to claim and enforce.

We, __, undertake to renew the Bank Guarantee provided the request for the Bidder before the expiry of Bank Guarantee makes renewal.

We, __, (Name of the bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the KDCMPUL in writing and the guarantee shall be a continuous and irrevocable guarantee up to a sum of Rs __ (Rupees __ only).

Notwithstanding anything stated herein before: (i) our liability under this guarantee is restricted to Rs __ (Rupees _ only) (ii) The Bank Guarantee shall remain in force till

__/__/20__ and (iii) The Bank is liable to pay the guarantee amount or any part thereof under this Bank Guarantee only if the KDCMPUL serves upon the bank a written claim or demand on or before __.
Signature

Seal
Code Number
Place: Date:

Notes:
Bidders should ensure that the bankers, before submission of the bank guarantees, put seal and code number of the signatory.
Stamp paper is not required in case of foreign Bidders.
The value of stamp duty should be as per latest stamp act of local state government where the bank guarantee issued.

Form of BG against Advance Payment

(On the Non-Judicial Stamp Paper as per the Stamp Act of State Government)

Bank Guarantee Number Date:

In consideration of the **Kaira District Co-operative Milk Producers' Union Limited.** hereinafter called `KDCMPUL') having agreed to grant an advance of Rs _ Rupees only) to M/s ___ (hereinafter called the said Bidder) under the terms and conditions of an contract/purchase order Number __ dated _ made between the KDCMPUL and M/s _ for the supply/ supply, erection and commissioning (hereinafter called the `said contract/purchase order') on production of a Bank Guarantee for Rs _ (Rupees _ only). We __ (hereinafter called `the Bank') do hereby undertake to pay the KDCMPUL an amount not exceeding Rs _ (Rupees ____ only) against any loss/ damage caused to or suffered would be caused or suffered by the KDCMPUL by reason of any breach by the said Bidder(s) of any of the terms and conditions contained in the said contract/ purchase order.

We, ___, do hereby undertake to pay the amounts due and payable under this guarantee without any demur merely on a demand from the KDCMPUL which has to be served on us before the expiry date of Bank Guarantee i.e. __ stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the KDCMPUL by reasons of any breach by the said Bidder(s) of any of the terms and conditions contained in the contract/purchase order or by reasons of the Bidder(s) failure to perform the said contract/purchase order, any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee shall be restricted to an amount not exceeding Rs _ (Rupees __ only).

We, __, further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said contract/ purchase order and that it shall continue to be enforceable till all the dues of the KDCMPUL, under, or by virtue of the said contract/purchase order have been fully paid and it's claims satisfied or discharged or till the KDCMPUL certifies that the terms and conditions of the said contract/Purchase Order have been fully and properly carried out by the said Bidder(s) and accordingly discharge the guarantee unless a demand or claim under this guarantee made on us in writing on or before _ , we shall be discharged from all liability under this guarantee thereafter.

We, ___, further agree with the KDCMPUL that the KDCMPUL shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said contract/Purchase Order to extend time of performance by the said Bidder from time to time or to postpone for any time or from time to time any of the power exercisable by the KDCMPUL against the said Bidder and to forbear or enforce any of the terms and conditions relating to the said contract/Purchase Order and we shall not be relieved from our liability by reason of any such variation, or extension or for any forbearance, act of omission on the part of the KDCMPUL or any indulgence by the KDCMPUL to the said Bidder or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank agrees that the amount hereby guaranteed shall be due and payable to the KDCMPUL on serving us with a notice before expiry of Bank Guarantee requiring the payment

of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by registered post at the address of the Bank.

We, ___, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the KDCMPUL in writing.

We, __, undertake to renew the Bank Guarantee provided the request for the said Bidder before the expiry of Bank Guarantee makes renewal.

Notwithstanding anything stated herein before: (i) our liability under this Bank guarantee is restricted to Rs.__ (Rupees __ only) (ii) The Bank Guarantee shall remain in force till _____20____ and (iii) The Bank is liable to pay the guarantee amount or any part thereof under this Bank Guarantee only if the KDCMPUL serves upon the bank a written claim or demand on or before _____.

Signature

Seal

Code Number

Place: Date:

Notes:

Bidders should ensure that the bankers, before submission of the bank guarantees, put seal and code number of the signatory.

Stamp paper is not required in case of foreign Bidders.

The value of stamp duty should be as per latest stamp act of local state government where the bank guarantee is issued.

Contract Form

(On the Non-Judicial Stamp Paper as per the Stamp Act of State Government)

THIS AGREEMENT made the __ day of __ 2016 between **Kaira District Co-operative Milk Producers' Union Limited.**, Anand 388 001, (hereinafter "the purchaser") of the one part and __

(hereinafter "the Bidder") of the other part.

WHEREAS the Purchaser is desirous that certain goods and ancillary services should be provided by the Bidder, viz (brief description of goods and services) and has accepted a bid submitted by the Bidder in response to the Purchaser's Bidding Document Reference P&E/AMUL/ANAND/PLANT MACHINERIES/2016-17 for the supply of those goods and services in the sum of Rs _ (Rupees ___) (hereinafter "the contract price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

In this agreement words and expressions shall have the same meaning as in the Terms and Conditions mentioned in Section III and Section IV and in other sections in the above-referred Bidding Document. The following documents shall be deemed to form, read and construe as part of this agreement:

- The offer and the price schedule submitted by the Bidder and as accepted by the purchaser;
- The schedule of requirement/ list of items and the technical specifications in the above referred Bidding Document;
- The terms and conditions in the above-referred Bidding Document;
- The Purchaser's purchase order Number___dated In consideration of the payments to be made by the Purchaser to the Bidder as hereinafter mentioned, the Bidder hereby covenants with the Purchase to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Purchaser's purchase Order and Bidding Document.

The Purchaser hereby covenants to pay the Bidder in consideration of the provision of the goods and services and the remedying of defects therein, the contract price or such other sum as may become payable under the provisions of the purchase order at the times and in the manner prescribed in the Purchase order and bidding document.

IN WITNESS whereof the parties hereto have caused this agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed and delivered by the authorized signatory for the Purchaser) In the presence of:

1.
2.

Signed, sealed and delivered by the authorized signatory for the Bidder) In the presence of:

1.
2.

Pro forma of Completion Certificate

(To be issued by the purchaser after successful commissioning of the supplied goods)

Reference Date

Subject: Certificate of commissioning of supplied goods/ PLANT

This is to certify that the plant section as detailed below has been received in good condition along with all the standard and special accessories (subject to short supply mentioned) in accordance with the Contract/ Specifications. The same has been installed and commissioned. The Performance Test has been done to our entire satisfaction and operators have been trained to operate the plant. The Bidder has fulfilled his contractual obligations satisfactorily (subject to unfulfilled obligations mentioned)

Completion Certificate		
Sr. No.	**Item**	**Description**
1	Contract Number & Dated	
2	Description of the plant	
3	Quantity	
4	Bill of Lading/ AWB (for Import Contract)/ LR/ RR &Dated	
5	Name of the vessel/ transporters	
6	Consignment Note Number & Dated	
7	Name of the consignee	
8	Name of the consignee	

Details of short supply and recoveries to be made		
Sr. No.	**Description**	**Amount to be recovered**
1		
2		

Details of unfulfilled contractual obligations		
Sr. No.	**Description**	**Amount to be recovered**
1		
2		

Explanatory Notes for filling up the certificates on contractual obligations of the Bidder

- Bidder has *adhered to the time schedule specified* in the contract in dispatching the documents/ drawings pursuant to technical specifications.
- Bidder has installed and commissioned the plant in time (within the period specified in the contract) from the date of the intimation by the Purchaser in respect of the installation and commissioning of the units.
- Training of personnel as per contractual obligation by the Bidder has been done.
- In the event of documents having not been supplied or installation and commissioning of the plant have been delayed on account of the Bidder, the extent of delay should always be mentioned.

Form of Bank Guarantee for Bid Security

(On Non-Judicial Stamp Paper as per the Stamp Act of Local State Government)

Bank Guarantee Number: Date:

This Deed of Guarantee made this ____ day of 20 ____(two thousand and ----) by (Name and the address of the bank), hereinafter referred to as the Bank, which shall unless repugnant to the context and the meaning thereof include its legal representatives, successors and assignees and **the Kaira District Co-operative Milk Producers' Union Limited** (hereinafter referred to as the KDCMPUL) which expression shall unless repugnant to the context and meaning thereof include its legal representatives, successors and assignees.

Whereas the KDCMPUL has invited Bids for the design, supply, installation & commissioning of Butter Tub Packing Machine, Cheese Blister Packing Machine and Ghee Plant, by the Invitation to bid number P&E/AMUL/ANAND/PLANT MACHINERIES/2016-17. AND WHEREAS (Name and Address of the Bidder) who having submitted their bids (hereinafter referred to as the Bidder) and have agreed to deposit to the KDCMPUL an amount indicated in the Invitation to bid as per the terms and conditions of the Bidding Documents. AND WHEREAS the KDCMPUL is also willing to accept a Bank guarantee in lieu of payment by demand draft of an amount equivalent to the amount of Bid security required to be deposited by the Bidder to the KDCMPUL and the guarantee shall be kept **valid for 60 days** after the day of the opening of the bids.

In consideration of the KDCMPUL having agreed to consider the Bid proposals having submitted by the Bidder without depositing the amount of Bid security and against this Bank guarantee, we (name and address of the Bank) hereby undertake and guarantee to make payment to the KDCMPUL the amount of Bid security or any part thereof not deposited by the Bidder to the KDCMPUL at any time (time being the essence of the Contract) when the KDCMPUL asks for the same as per the terms and the conditions of the Bidding Document within 60 days from the date of opening of bids.

The Bank further undertakes not to revoke this guarantee during its currency except with the previous consent of the KDCMPUL in writing and the guarantee shall be continuous and irrevocable guarantee up to a sum of Rs _ (Rupees _ only) provided always that any indulgence or forbearance on the part of the KDCMPUL to the said Bidder, with or without the consent of the Bank shall not prejudice or restrict remedies against the bank nor shall the same in any event be a ground of defence by the Bank
against the KDCMPUL.

In case the KDCMPUL puts forth a demand in writing on the Bank for the payment of amount full or in part against this bank guarantee, the Bank will consider without demur that such demand by itself is a conclusive evidence and proof that the Bidder has failed in complying with the terms and conditions stipulated by the KDCMPUL in its Bidding Document and payment will be made to the KDCMPUL without raising any disputes regarding the reasons for such failure on the part of the Bidder.

The Bank shall not be discharged or released from this guarantee by any arrangement between the Bidder and the KDCMPUL with or without the consent of the bank or any alterations in the obligations of the parties or by an indulgence, forbearance shown by the KDCMPUL to the Bidder.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the KDCMPUL may have or hereafter possess against the Bidder and the KDCMPUL shall be under no obligations to marshal in favor of the Bank any such securities or fund or asset that the KDCMPUL at its absolute discretion may vary, exchange, renew, modify or refuse to complete or enforce or assign any security or instrument. The Bank agrees that the amount hereby guaranteed shall be due and payable to the KDCMPUL on serving us with a notice before expiry of Bank Guarantee requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by Registered Post at the address of the Bank.

In order to give full effect to the provisions of this guarantee the Bank thereby waives all rights inconsistent with the above provisions and which the Bank might otherwise as a guarantor be entitled to claim and enforce.

The guarantee shall remain in force until _ and the bank undertakes to renew the Bank Guarantee provided the Bidder before the expiry of Bank Guarantee makes the request.

Notwithstanding anything stated herein before: (i) our liability under this guarantee is restricted to Rs _ (Rupees _ only) (ii) The Bank Guarantee shall remain in force till _ 20 _ and (iii) The Bank is liable to pay the guarantee amount or any part thereof under this Bank Guarantee only if the KDCMPUL serves upon the bank a written claim or demand on or before _.

Place: SIGNATURE

Seal Code Number.

Note:

Bidders should ensure that the banker before submission of the bank guarantees puts the seal and code number of signatory.

Stamp paper is not required in case of foreign Bidders.

The value of stamp duty should be as per latest stamp act local state government from where the bank guarantee issued.

Bank Guarantees from Foreign and Scheduled Banks

Bank Guarantee from all nationalized banks is acceptable. Other than the Nationalized Banks, BGs from the following banks shall also be acceptable:

1. Scheduled Banks:
   - IDBI Bank
   - ICICI Bank
   - AXIS Bank
   - HDFC Bank

APPENDICES – II

Contents

SPARES REQUIREMENT

All bidders are required to follow and consider the following Mandatory spares philosophy at the time of submitting the bid prices.		
Sr. no.	**Items**	**Spares required**
01	**Instrumentation items**	
a)	Instruments including sensors / transducers, transmitters, solenoid valves / coils, air filter regulators, RTD, proximity switches, gauges, process/utility switches, instrument configuration etc.	20% or minimum one number of each type, make, model number and range whichever is higher
b)	Control Valves	5% or minimum one of the following items for each type, model, make, size etc . • Diaphragm • Body Gasket • Packing set
c)	DCS/PLC/PLC control system	• 20% or minimum one number of each type of following o Analog I/O card o Digital I/O card o Power supply module o Interface card o Operating panel display
d)	Pneumatic Valves	10% or minimum one number of following items for each type, model, make, size etc. • Sealing kit • 2 way SOV • 3 way SOV • Limit / Proximity switches • Cable connectors
e)	Actuated valves	10% or minimum one number of following items for each type, model, make, size etc. • Spare kit for valves • Spare kit for actuator
02	**Electrical Items**	
a)	Electrical Switch gear items like fuses, MCBs, Contactors etc.	Spares for 2 years of normal operation as per OEM recommendation.
03	**Mechanical Items**	
a)	Pumps & Motors	10% or minimum one number of

		following items whichever is higher. • Bearing sets • O-ring set • Gasket set • Oil seals • Coupling keys • Mechanical seal set

DOCUMENTATION REQUIREMENT

1. Documentation Requirement

1.1. Following minimum documentation shall envisaged to be submitted by the Bidder at time of detailed engineering for review, information or approval and as a final As-Built Drawing after commissioning of the plant.

1.1.1. Drawings:

1.1.1.1. Plant P&IDs Drawings.
1.1.1.2. Utility Generation and Distribution P&IDs.
1.1.1.3. Plant & Utility Equipment Layout.
1.1.1.4. GA Drawing of Plant & Utility equipment along the details of Point load and foundation details.
1.1.1.5. GA drawings of fabricated equipments.
1.1.1.6. Plant O&M Manual (Inclusive of Process as well as utility) with all trip settings, interlock details etc.
1.1.1.7. Plant Commissioning Manual (Inclusive of Process as well as utility)
1.1.1.8. O&M Manual of Individual Equipment supplied by OEM.
1.1.1.9. Piping layout (Process and Utility)
1.1.1.10. Electrical & Instrumentation Drawings
1.1.1.10.1. Panel location drawings
1.1.1.10.2. Cable tray layout drawings
1.1.1.10.3. Earth pit location layout
1.1.1.10.4. Communication cable layout
1.1.1.10.5. Instrument Index
1.1.1.10.6. Process Logic write-up
1.1.1.10.7. DCS/PLC / PLC Graphics and colour scheme
1.1.1.10.8. Process and Utility Interlock details with Trip and alarm setting details.

1.1.2. Order / Purchase specifications:

1.1.2.1. Each Purchase / Ordered specifications shall have following as minimum:
1.1.2.1.1. item description
1.1.2.1.2. Bidder name and contact details
1.1.2.1.3. Project details
1.1.2.1.4. Design Basis
1.1.2.1.5. Specification of ordered items
1.1.2.1.6. Data sheet (Showing Make & Model number of the item along with make and model number of accessories ordered, Service catered, Point of installation, specific requirements, if any, etc.)
1.1.2.1.7. Approved QAP
1.1.2.1.8. Product catalogue of the selected model giving the brief technical specifications and model decoding details.
1.1.2.1.9. GA drawings
1.1.2.1.10. BOQ with makes for Packages and Panels.
1.1.2.1.11. Panel wiring details for Packages, MCC, PCC, APFC, DCS/PLC, HT panel, DG set etc.

1.1.2.1.12. Sizing calculations

1.1.3. Further to above all original documents pertaining to inspection as per approved QAP shall be handed over with the running invoices.

1.1.4. All the above drawings shall be submitted in six sets as Hard copy and One set as editable soft copies (Auto CAD, PDF, Excel sheet, MS word etc.)