



**THE JHARKHAND STATE COOPERATIVE MILK
PRODUCERS' FEDERATION LTD.**

FTC CAMPUS, SEC-2, DHURWA, RANCHI – 834004
Ph.: +91-(0651) 2543062, MOB: 7544003404/7360035219,
Email: purchase@jmf.coop, Website: www.jmf.coop



TENDER DOCUMENT

(COMPLETE BIDDING DOCUMENT)

TENDER INVITATION FOR SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER (BMC) -2KL & 3KL WITH HEAT RECOVERY UNIT

Single Stage - Two Part Bid

TENDER NO. JMF-PI-BULK MILK COOLER-2KL&3KL/2020-21/068

Important dates:

Date of Enquiry/ Tender : 08 Jan 2021

Last date for submission of Offer/Tender : 28 Jan 2021 by 17:00 hrs



Name of Bidder: _____

Address: _____

Telephone no: _____

Email Id _____

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Jharkhand State Cooperative Milk Producers' Federation Ltd.

Near F.T.C Campus, Sec-II, H.E.C., Dhurwa, Ranchi – 834004,
Ph.: 7544003404, 7360035219 websites <http://www.jmf.coop>



SHORT TENDER NOTICE

TENDER NO. JMF-PI-BULK MILK COOLER-2KL&3KL/2020-21/068

Dt. 08 Jan 2021

Sealed Tenders are invited from reputed suppliers for Supply, Installation & Commissioning of Bulk Milk Cooler (BMC) -2KL & 3KL with Heat Recovery Unit as below.

Tender Details	Req. Qty	EMD Amt. (Rs.)	Last date and time for bid submission
SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER -2 KL WITH HEAT RECOVERY UNIT	07 Nos	Rs. 1,50,000/-	28 Jan 2021 up to 05:00 PM
SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER -3 KL WITH HEAT RECOVERY UNIT	03 Nos		

Interested bidders may obtain the tender document from the office of undersigned on any working days during office hours from the date of publishing of Tender. Alternatively, it can be downloaded from our website: www.jmf.coop. The filled tender should reach us latest by **05.00 PM on or before 28 Jan 2021**. The Bid/Tender shall be opened at the prescribed time and date mentioned above in presence of authorized representatives of bidders. The Tender without Earnest Money are liable to be rejected. The undersigned reserves the right to accept/reject any/ all tender(s) without assigning any reason whatsoever.

For any enquiries, bidders may contact at the above address. All future announcement related to this tender shall be published on our website only.

Managing Director

BIDDING DOCUMENT

TENDER FOR SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER (BMC) -2KL & 3KL WITH HEAT RECOVERY UNIT DUE ON 28.01.2021 (By 5.00 PM)

(COMPLETE BIDDING DOCUMENT)



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INSTRUCTION FOR BIDDER'S

1. Any deviation from the bidding document, liable to be rejected.
2. Bids without EMD and tender cost shall be rejected.
3. Non-compliance to the tender requirement liable to be rejected.
4. Bidders should furnish their complete address for the purpose of future correspondence pertaining to bidding document.
5. Correction in the document if any should be sealed and counter signed.
6. Negligence of the bidder in preparing the bid confers no right to withdraw the bid after it is opened.
7. Specifications, conditions, schedules and drawings of bidding document constitute an integral part of the bid.
8. All the bids, along with enclosures, drawings and technical literature, should be in English only.
9. Bidding document shall be covered and interpreted according to the system and components under tropical conditions.
10. All the bidders should submit relevant documents to prove their eligibility along with their bid and also the qualification with required documentation.
11. The offer should be valid for a period of 365 days from the date of opening of bid.
12. All the bidders should quote for the items as per the specifications and details given in this bidding document.
13. The bid prices should be quoted strictly in accordance with bidding terms and conditions.
14. The purchaser reserves the right to accept or reject any or all bids without any explanation to bidders.
15. The bidder will endorse the duly signed copy of terms & conditions specifications along with offer.



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TENDER INVITATION

SEALED TENDER/QUOTATION IS BEING INVITED FOR SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER -2KL & 3KL WITH HEAT RECOVERY UNIT

The Jharkhand State Cooperative Milk Producers' Federation Ltd. (JMF), registered under Jharkhand Co-operative Societies Act, 1935 is engaged in milk procurement, processing and marketing activities of item milk and milk products in the state of Jharkhand and is popularly known for its brand 'Medha'. Under an MoU, the Federation is being run & managed by the National Dairy Development Board (NDDB).

The H.O. is located at Sec-II., H.E.C., Near FTC Campus, Dhurwa, Ranchi – 834004

JMF (Jharkhand State Cooperative Milk Producers' Federation Limited, Ranchi), hereby invites tender (in sealed envelope) under two bid system i.e. technical and financial bids from the manufacturers for the purchase of BMC on F.O.R basis for delivery at its Medha Dairy Plant, Hotwar, Ranchi.

Sl. No.	Name of Item	Req. Qty	Unit	Remarks
1	SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER -2 KL WITH HEAT RECOVERY UNIT	07	SET	The rate quoted must be on F.O.R. basis inclusive of P&F, Insurance, Freight, GST etc for delivery at our Hotwar Dairy Plant, Ranchi – 835217
2	SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER -3 KL WITH HEAT RECOVERY UNIT	03	SET	

The bids shall be submitted in two separate envelopes (under one main envelope super-scribing: **TENDER FOR SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER -2KL & 3KL WITH HEAT RECOVERY UNIT.**

1. Cost of documents : Nil
2. Tender Start Date : 08 Jan 2021
3. Tender submission End Date & Time : 28 Jan 2021 at 17.00 hours
4. Date and time of opening of Part I
Technical Bid Document : 30 Jan 2021 at 15:30 PM
5. Date and time of opening of Part II
Financial Bid Document : Shall be notified Later after opening of Technical Bid.

All the tenders will be acceptable only in 'Sealed Envelope' on or before the due date. Tenders will be opened on the prescribed date as mentioned above in the presence of the agency or their authorized representative who may like to be present in the office at Hotwar Dairy Plant of Jharkhand State Cooperative Milk Producers' Federation Limited, Ranchi.

All tenders in which any of the prescribed conditions are not fulfilled or which have been vitiated by errors in calculations, totaling, or other discrepancies or which contain over writing in figures or words or corrections not initialed and dated will be liable to rejection.



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ELIGIBILITY & TENDER SUBMISSION:

SEALED-TENDERS are invited for **SUPPLY, INSTALLATION & COMMISSIONING OF BULK MILK COOLER -2KL & 3KL WITH HEAT RECOVERY UNIT** in single stage two cover system i.e., Pre-Qualification/Technical Bid (Technical Envelope) and Financial Bid (Commercial Envelope) as below:

Envelope 1: Technical Bid (Part-1)

The bidder should submit relevant documents, eligibility criteria, technical details as required in enclosed **Annex-I** and **Annex-III** in the Technical Bid.

Envelope 2: Commercial Bid (Part-2)

The bidders should quote the prices in Indian Rupees in price bid format in the Financial /Commercial Bid Format enclosed as **Annex-II** as per technical parameters/ specifications enclosed as **Annex-III**]

Under this process, the Eligibility and qualification of the Applicant/ Agency will be first examined based on the detail submitted under first cover (Technical Bid) with respect to eligibility criteria and specifications prescribed in this tender document. The Price Bid under the second cover shall be opened for only those Applicants whose technical Applications are responsive to eligibility and qualifications requirements as per Tender document.

Requirement details:

Sl. No.	Name of Item	Req. Qty	Unit	Delivery Period	Remarks
1	Supply, Installation & Commissioning of Bulk Milk Cooler - 2 KL with Heat Recovery Unit	07	Set	60 days from the date of P. O	
2	Supply, Installation & Commissioning of Bulk Milk Cooler - 3 KL with Heat Recovery Unit	03	Set	60 days from the date of P. O	

ELIGIBILITY AND QUALIFICATION REQUIREMENTS (CRITERIA FOR MANUFACTURER):

The bidders must meet the following minimum qualifying criteria:

- The manufacturer should have supplied more than 500 BMC's of similar capacities to other Milk federations / cooperative Union / reputed private vendor in the same name.
- The Annual average turnover of the manufacturer should not less than Rs 10.00 crore for last 3 financial years.
- The bidder shall provide certificate from the client with respect to completion and running of BMC and all other related accessories.
- The company should have in house manufacturing facility.
- Full details of materials including the manufacturer's name and brand of items must be mentioned wherever applicable.
- The Federation does not bind itself to accept the lowest quotation and reserves the right to accepting any quotations in part or full without assigning any reasons.
- Date of delivery prescribed shall be deemed to be the essence of the purchase order contract. Deliveries should be completed up to/within three months from the date of placement of order/letter of Intent.



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- Quotations required to be submitted with drawing, specifications and submitted as such, shall be deemed to mean that the bidder submitting such a bid is fully acquainted with the technical details.
- Bidders should clearly state the percentage of discount, if offered by them.
- The BMC manufacturer should have ISO certification.
- Price escalation over the offered price is not applicable during the tender validity period i.e (365 days).
- Preference shall be given to manufacturer of Bulk Milk Cooler in India so that stage inspection of Bulk Milk Cooler can be offered to check the quality of product.
- Preference shall be given to the manufacturer having separate spare and service department. Preference shall be given to the manufacturer having local service centre/Engineers near to the user point to cater timely sales services.
- Preference should be given to the manufacturer who has executed maximum turn key projects right from supply, installation, commissioning and AMC. (Documents shall be requires as proof)
- Bidders are required to submit separate bids for technical and financial/commercial in separate sealed envelope. The commercial bid will be opened only of the eligible bidders who fulfill eligibility criteria.
- Preference shall be given to the manufacture who are empaneled under NDDB.
- Bidder/Manufacturing/Supplier unit who has been blacklisted either by the Tender inviting authority or by any state Govt. or Central Govt. organization is not eligible to participate in the tender for that item during the period of blacklisting.
- The BMC should confirm to the quality standard as specified under BIS / ISI or empaneled under NDDB.

The following documents should be enclosed in Cover "A" (Technical Bid) by the tenderer. All the photocopies are to be self-attested.

TERMS AND CONDITIONS:

1.0 Submission of Tender/Bid in Sealed Envelope

Envelope 1: (Cover "A")

- 1.1. **Technical Bid:** - Under technical bid, the Tenderer/ bidder interested, shall fill its complete profile in the enclosed format **Annexure – I – 'Tenderers' Profile'** and **Annexure-III** Technical Specification shall provide/ submit all such documents as requested/ required.
- 1.2. The items' technical details/parameters/ specifications/Test Report must be provided under the technical bid envelope.
- 1.3. Bidders qualifying the technical bid (based on the documents submitted) will be intimated to submit the samples within a stipulated time period before opening of Price bid.

Envelope 2: (Cover "B")

- 1.4. **Commercial Bid:** -Under commercial bid, the price/ rate should be quoted on F.O.R. destination basis inclusive of packing forwarding, GST, insurance & transportation charges etc. in the enclosed format **-Annex-II- 'Commercial Bid'**.



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1.5. The prices/ rate quoted should have equipment wise and post warranty Comprehensive Maintenance charges for a period of 2 years with breakup. The terms of comprehensive maintenance shall be as below:

- i. The period of comprehensive maintenance shall be of two years, post expiry of warranty for the BMC Unit.
- ii. During the warranty & Maintenance contract period, quarterly inspection visits including servicing of the DG Sets shall be required for which cost of consumables shall be payable by JMF but spares (if required) & labour/service charge shall be payable by supplier.
- iii. Breakdown of the DG set or any other component of unit shall be attended onsite within 24 hours of reporting and defective components/ spares are to be replaced free of cost by the supplier. The service/ labour charges shall also be payable by supplier.

1.6. **Bid Currencies:** -The rate/ price should be quoted in Indian Rupees only.

2.0 **Period on Validity of Bids:** -

2.1. Bids shall remain valid for 365 days after the date of bid opening prescribed by JMF, Ranchi. A bid valid for a shorter period shall be rejected as non-responsive.

3.0 **Payment Terms:** -

3.1. 90% within 30 days from the date of receipt of materials/ services and its acceptance and balance 10% after one year from the date satisfactory Commissioning and performance trial. However, this can be released along with 90% payment against submission of a Performance bank guarantee for 10 % value valid for one year from the date of Commissioning.

3.2. The payments shall be made through NEFT/RTGS and all payments shall be made in Indian Rupees only.

3.3 **Penalty:** Penalty @ 0.5 % of the order value / week shall be imposed for delay in execution beyond the time frame.

4.0 **Registration of Goods:**

4.1. If require under the Applicable Law, Goods supplied under the contract shall be registered for use in India.

5.0 **Patent Rights:**

5.1 The supplier 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.

5.2 The supplier shall be providing all the necessary input/output strings/ technical details for all the equipment supplied.

6.0 **Inspections and Tests:**

6.1 Stage-wise inspection and pre dispatch inspection (to check compliance to technical specification defined in Technical specification) may be carried out by the Purchaser or an agency appointed and paid by Purchaser for this purpose. Goods shall be dispatched only after receipt of satisfactory inspection report and communication to this effect by the End Implementing Agency/Inspection Agency.



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7.0 Packing:

7.1 The Supplier 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 Purchase Order.

8.0 Delivery Time:

8.1 The items shall be supplied within 60 days from the date of acceptance of the order and details given in the Requirement Details under the Eligibility Section.

8.2 It is mandatory on the part of the bidder to install / commission the BMC and take successful trials with the existing infrastructure within 30 days from the date of supply.

9.0 Earnest Money:

9.1 The bidder shall pay Bid Security (EMD) of Rs 1,50,000/- (Rupees One lakh fifty thousand only) along with the technical bid by Demand Draft in favor of "JHARKHAND STATE COOPERATIVE MILK PRODUCERS' FEDERATION LTD" drawn on any Nationalized Bank and payable at RANCHI. Bids received without Earnest Money deposit (EMD) shall stand rejected and thus shall not be considered for evaluation etc at any stage.

9.2 The bid security (EMD) without interest shall be returned to the unsuccessful bidders after finalization of contract.

9.3 The EMD deposited by successful agency will be adjusted towards Security deposit as demanded above. If the successful bidder fails to furnish the difference amount between Security Deposit and EMD within 30 (Thirty) days after the issue of Letter of Award of Work, his bid security (EMD) shall be forfeited unless time extension has been granted by "PURCHASER".

9.4 The EMD shall be forfeited if successful bidder fails to undertake the work or fails to comply with any of the terms and conditions of the contract.

9.5 Security Deposit will be forfeited in the event of failure by the Supplier to deliver the materials as per the schedule and the JMF may also go for risk purchase at Supplier's cost in the event of such failure and the differential cost, if any, may be recovered from the supplier's pending bill.

9.6 The Security amount of the successful bidders will be refunded within 30 days of receipt of request letter from the supplier after completion of delivery as per contract/ purchase order. Similarly, the EMD of the unsuccessful bidder will be refunded within 30 days of the completion of the tender process on their request.

GENERAL TERMS AND CONDITIONS

1. The rate should be on the basis of F.O.R. our destination as mentioned in tender notice. The element of Goods & Service Tax, freight/ P&F/ Octroi, discount or any should be mentioned clearly stated, failing which it will be presumed that these elements are included in the rates quoted for. Breakup of the price quoted should be given.
2. The rate quoted and accepted will be binding on the tenderer for a period of one year from the date of placement of purchase order and on no account any increase in the price will be entertained till the completion of this tender period.
3. In case of sub -standard quality, materials shall be rejected & payment for the same shall not be released.
4. In case of DPMCU, it is mandatory on the part of the manufacturer / authorized representative to demonstrate the set-in presence of tender committee prior to opening of commercial bid under advance intimation.
5. The eligibility criteria mentioned in the document refers to the original manufacturer only.



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6. It is mandatory on the part of the manufacturer to have a service center in the state of Jharkhand. The detailed contact address with land line / cell number should be provided along with the tender document.
7. The set should be covered under 3 years warranty/guarantee period from the date of successful commissioning.
8. It shall be the responsibility of the supplier for getting necessary verification / re-verification of and stamping of weighing scales supplied as per the statutory compliance from W&M offices in various districts of Jharkhand for the warranty as well as post warranty AMC duration.
9. It is mandatory on the part of bidder to quote for all the item as mentioned in the BOQ falling which the offer shall not be consider.
10. Calibration report from Electronics & Quality Development center, Govt. of India should be furnished.
11. In case ISI / BIS certification / empaneled under NDDDB certification is not produced the bid shall be rejected.
12. The goods will be properly packed before dispatch. All losses in transit due to improper / poor packing will be borne by the supplier.
13. The Jharkhand Milk Federation also reserves the option to go in for the purchase of material at the risk and cost of the successful tenderers, if the party fails to give supplies as per our specifications and schedule. The extra amount if any, in doing so will be recoverable from the defaulter.
14. No tenderer shall be allowed at any time on any ground whatsoever to claim revision of or modification in the rate quoted by him. Clerical error / typographical error, etc. committed by the tenderers in the tender forms shall not be considered after opening of tenders.
15. In case of any dispute, arising out of the contract, the same will be referred to sole arbitration of M.D., Jharkhand State Cooperative Milk Producers' Federation Limited or his authorized representative whose decision in the matter will be final and binding on both the parties. For all legal matters & dispute Ranchi court shall be our jurisdiction.
16. Participation in this tender is invited from the manufacturer. When any item is required to be ISI marked, the manufactures/Suppliers along with their offer should attach photocopy of the required certificate.
17. If any information or documents furnished by the tenderer with the tender papers are found to be misleading or incorrect at any stage the tender of the relevant items in the approved list shall be cancelled and steps will be taken to blacklist the said firm.
18. If any supplier has any genuine problem beyond his control for arranging the supplies as per our schedule, he will have to get the extension in delivery schedule well in time, failing which schedule given to him in original will be final. Request for extension in delivery schedule after expiry of schedule time and supply will not be entertained.
19. In case of non-supply of the material or any act of commission or omission of a supplier, the Jharkhand Milk Federation may cancel the tender & forfeit the earnest money of the party. In case of Major commission/omission, the party may be debarred/ black listed.
20. Even after inspection, if any defective material is observed during usage, the same shall stand rejected. It will not be obligatory to accept the lowest tender and the JMF reserves the right to accept/reject/scrap any or all of the tenders without assigning any reasons.
21. The suppliers should be capable to supply the entire requirement. However, JMF reserves the right to engage more than one supplier for critical item & for item required in large quantity.

Managing Director
Jharkhand Milk Federation



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Tenderer's Profile – ANNEX- I

No	Details			
1	Name of Vendor/ Tenderer			
2	Address of Registered Office			
3	Address of Factory/ Works			
4	Name of Contact Person			
5	Contact Nos.			
6	Type of Firm: Ltd Co/ Pvt. Ltd. / Partnership/ Proprietor			
7	Nature of Firm: Manufacturer/ Traders / Autho. Dist. / Dealer			
8	Year of Establishment			
9	Name of Product, you Deal	Please, Specify in separate sheet (As per below Format)		
		S. No	Item Description (Shortly)	Make/Brand
10	G.S.T. No & Reg. Date			
11	PAN No & Date			
12	Turn Over Of last 3 Year (Rs.)	1.	2.	3.
13	If You have maintained any quality standard (Pl. Specify)			
14	Name of Clients (If required, Pl. Specify in separate sheet)	1.	2.	3.
15	Min. Lead Time Required (Days)			
16	Bank Details	Name of Bank : Branch Address: Account No. : IFSC Code :		
17	Documents to Be Attached	1. Copy of Registration + PAN Copy + GST Regn. 2. ISO Certificates 3. Autho. Dealership 4. Fin. Statements 5. Product Brochures 6. Copy of PO's (Min.5)		

Recommendation:

Seal & Sign. Of Vendor



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ANNEXURE-II (Financial Bid Format)

Ref. No. _____

Dated: ___/___/2021

FINANCIAL BID

1	2	3	4						5	6	7	8
Sl. No.	Particulars	Qty	Unit Price						Total Unit Price [a+b+c+d+e+f]	Total Price item for evaluation purpose [3x5]	Name of manufacturer (if items are not manufactured by self)	Remarks
			[a]	[b]	[c]	[d]	[e]	[f]				
			Ex-factor y price	Inland transp., insurance, & other local costs incidental to delivery	After Sales Service/ AMC cost (post warranty for 2 years)	Trainin g	GST on supply	GST on after sales/ services/ AMC charges				
A. Bulk Milk Cooler-2 KL & 3KL												
1												
2												
3												
4												
5												
6												
7												
8												

(In Words) Rupees _____)

Warranty/Guarantee: The Bidder should warrant that the goods supplied are new, unused, of the most recent or current models. The Bidder further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials, or workmanship.

The **warranty/ guarantee is for _____ months** after the Goods have been delivered at site, installed and accepted by the Purchaser.

Thanking you,

Name of Tenderer: _____
Name of Contact Person: _____
Post / Designation: _____

Yours faithfully,
Signature & Stamp of the Supplier/ Bidder



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ANNEXURE –III

Technical Specification for Bulk Milk Cooler (2KL & 3KL)

General Description and Scope of Work:

- 1.1. The design, supply, installation and commissioning of bulk milk cooler (BMC) including all accessories and optional components etc are included in the scope of work and is to be executed on turnkey basis. The operating conditions in villages are hot, humid, dusty and with fluctuating voltages of 130 to 300V for single phase and 300 to 500 V for 3 phases.
- 1.2. The BMC shall be a complete unit with the refrigeration system, agitator, lockable inlet & outlet valve & union. Also included are supply of SS piping & Milk hose 10 M long of Food grade quality, unions and milk transfer pump, erection materials, pipe supports, floor plates, pipe clamps. The scope includes electricals & control panels and interconnecting cables, cable, cable conduits, earth pit pipes with remove- able cover & earthing chambers as required by local electrical regulation.
- 1.3. The indicative distances between BMC outlet to milk pump inlet is 3M, BMC to mains power point & DG set-20M can be considered for calculating cable & SS Piping requirement, supports etc. However, the exact distances shall be as per site conditions. Complete piping & cabling actually necessary for installation shall be supplied.
- 1.4. The bidder's scope starts from can tipping bar/balance tank/milk pump & SS piping to inlet of the BMC for receiving the milk (as the case may be for a specific site). From BMC, the milk shall be adequate length and milk pump installed at milk collection centre near BMC. For some installation of 1 KL milk is fed directly to inlet of BMC through a SS Funnel.
- 1.5. The supplier shall quote the reputed make of all bought out components included in the bid, which shall be approved by the Purchaser before finalization of the contract.
- 1.6. The price for the optional items wherever specified in the enquiry shall be quoted.
- 1.7. The total job is on turnkey basis and included supply, installation, testing, commissioning, training of the field personnel and providing Annual Maintenance Services for a Period of 2 years.

2.0 Bulk Milk Cooler Tank:		
Sr. No	Particulars	Technical Specifications
2.1	Standard applicable and cooling time required at 48 Deg. C ambient conditions	ISO 5708 Type II (latest version) for 2 milk collections: a) Cooling 50% of first milk collection of its rated capacity in 3 hrs from 35 Deg C to 4 Deg C b) Cooling of 100% of milk volume after 50% of milk is added from second milk collection (average temp 10 Deg C to 4 Deg C) in 1 hrs 30 minutes.
2.2	Rated Capacity-Litres	2000L/3000L for 2 milk collection
2.3	Gross Capacity- Litres	+10% of Rated Capacity-Litres (must be 10% more than rated capacity)
2.4	Material of Construction	AISI 304 (refer 2.8 & 2.9 below)
2.5	Type	Open type for BMC capacity 2KL Closed type for BM Capacity 3KL
2.6	Tank evaporator	<ul style="list-style-type: none">• The tank evaporator plate should have adequate surface area ensuring that the milk is cooled in the local ambient conditions of 48 Deg. C and in the time periods as specified above.• Laser welded with Operating pressure of 30 bars and crash test pressure of 60 bars. In case of rectangular /circular type bulk milk cooler, the evaporator shall be fixed at the bottom plate of the inner tank.• For 2000 & 3000 litre tanks the total evaporative eras shall be divided and separated into two sections. Each section shall



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		have separate suction & discharge ports connecting to each compressor (Scroll type make Danfoss).
2.7		<ul style="list-style-type: none"> The preferred shape of the tank shall be circular/horizontal rectangular with an open-able & lockable top cover upto 2000 Litre capacity For 3000 litre BMC, tanks shall be completely closed type in cylindrical/elliptical orientation with circular/elliptical dish ends and manhole of size 450mm minimum on top with lockable cover. The shape of the BMC tank shall conform to International sanitary design.
2.8	Evaporator Plate Thickness	<ul style="list-style-type: none"> For 2KL & 3KL BMCUs- 2mm Bottom and 0.8mm Top
2.9	Thickness of Inner and Outer Shell of tank	<ul style="list-style-type: none"> Open Type 2KL both inner & outer: 1:6mm Close Type 3KL Inner 2.0mm, Outer 1.6mm
2.10	Agitators	<ul style="list-style-type: none"> 1 or 2 Standard /ISO 5708 Type 2 II (latest version) compliance ensuring even distribution of the milk fat when milk is agitated.
2.11	Ball feet	AISI 304 adjustable ball feet tamper proof and lockable with 50mm height adjustment. (Preferred 4 nos for BMC up to 2KL and 6 nos for capacities 3KL.)
2.12	Tank Fittings & Accessories	<p>Open Type BMC (2KL)</p> <ul style="list-style-type: none"> Milk inlet opening with SS 304 lockable cover. Open type tank with gravity feeding system shall be provided with one AISI 304 funnel with SS fine wire mesh. All SS fittings shall be of SMS standard. Top Cover lifting handle, outlet valve and blank union. Locking arrangement to be provided for top cover & Outlet Valve. Closed Type BMC (above 2KL) No-foam type inlet Outlet valve with locking arrangement and blank union. All SS fittings shall be of SMS standard. Air vent in SS construction with vermin proof design. Top Manhole with locking arrangement. SS Ladder to be provided for approaching top manhole.
2.13	Type of Insulation	<ul style="list-style-type: none"> Injected, CFC Free PUF 40Kg/Cum
2.14	Thickness of Insulation	<ul style="list-style-type: none"> 40Kg/Cu. M density, 50mm (min) in the walls & 90mm below the evaporator to allow 1 Deg. C temperature rise at given ambient conditions in 4 hours after milk is brought to 4 Deg C and when the BMC is not operating.
2.15	Efficiency of Insulation	<ul style="list-style-type: none"> 0.019 W-m/l
2.16	Facility to measure milk volume	<ul style="list-style-type: none"> 1 no. Dip Stick of AISI 304 3mm thick on wall of tank, calibration accuracy -0.5% Laminated & Framed calibration chart. Hooks to be provided on both the sides of the open type tank.
2.17	Product contact surface	<ul style="list-style-type: none"> 2 B Finish
2.18	Weld Surface Finish	<ul style="list-style-type: none"> Min. 150 Grit, all joint minimum 25mm radius curvature
2.19	Tank Cleaning Brushes	<ul style="list-style-type: none"> 1 tank cleaning brush and one 1500mm long pipe cleaning brush. 4 no. SS Pipe hooks to be provided for 2KL BMC 6 no. SS Pipe hooks for 3KL BMC
2.20	CIP Facility	<ul style="list-style-type: none"> Manual CIP Cleaning by brush for open type tanks Spray balls for closed type tanks For open tank all piping circuit including hose and tank will be cleaned by circulation of cleaning solution from balance tank & back to balance tank.



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		<ul style="list-style-type: none">For closed type tanks, facilities for cleaning in place shall be provided which include CIP spray balls & SS piping from balance tank through milk pump to BMC and back to balance tank.
2.21	Top cover opening limit switch	<ul style="list-style-type: none">Required for open type 2 KL BMC
2.21.1	Milk Tank Controls Panel	<ul style="list-style-type: none">Required
2.21.2	Wall or Tank Mounted	<ul style="list-style-type: none">To be specified by bidder
2.21.3	MOC of Panel & thickness	<ul style="list-style-type: none">AISI 304/1.6mm
2.21.4	Cooling & Agitation Controls	<ul style="list-style-type: none">Required- controls for management of cooling control and agitation, provision for cut-off/restart, intermittent operation of agitator, auto * manual facility
2.21.5	Battery Back-up	<ul style="list-style-type: none">Required
2.21.6	RS 232 port for Temperature	<ul style="list-style-type: none">RS 232 connectivity for temperature data transfer shall be provided.
2.23	Refrigeration Controls Panel	<ul style="list-style-type: none">Required
2.23.1	Wall Mounted	<ul style="list-style-type: none">Wall Mounted
2.23.2	MOC of Panel & Thickness	<ul style="list-style-type: none">AISI 304/1.6mm
2.23.3	Rating of Contractors	<ul style="list-style-type: none">Standard to meet functional requirement of the Refrigeration Control Panel
2.23.4	UV/OV trip facility	<ul style="list-style-type: none">Required
2.23.5	Neutral Protection Unit	<ul style="list-style-type: none">Required
2.23.6	Timer On-Delay	<ul style="list-style-type: none">Required
2.23.7	Auto/Manual Mode (Selector Switch)	<ul style="list-style-type: none">Required
2.24	Voltage Range	<ul style="list-style-type: none">Required for stabilizing the power supply to BMC from grid or DG set
2.24.1	Rating	<ul style="list-style-type: none">130 to 300 V for single phase and 300 to 500 for 3 phase BMC
2.24.2	MOC, Thickness & type of Structure	<ul style="list-style-type: none">15kVA- 1-3 Phase for 2 KL BMC20 kVA- 3 Phase for 3 KL BMC
2.24.3	MOC, thickness & Type of Structure	<ul style="list-style-type: none">MS Powder coated, 1.6mm & Pipe Structure
2.24.4	Accessories for 1 phase stabilizer	<ul style="list-style-type: none">63 A MCCB for incoming, 63 A phase selector, change-over and bypass switch, LED lamps, Servo controlled correction transformer, Digital V,I,F indicator for input & output, 63A terminal blocks, OV/UV trip with delay time, single phase preventer, static type energy meter with 10- 60 A capacity, Brass metal Glands, MCB's (DP-63A-2 no's, DP-32A-1 no. DP-16A- 1 no.), Metallic pump Socket, Servo Motor.
2.24.5	Accessories for 3 phase stabilizers	<ul style="list-style-type: none">40A MCCB for incoming, 40A phase selector, change-over and bypass switch, LED lamps, Servo controlled correction transformer, Digital V,I,F indicator for input & output, 63A terminal blocks, OV/UV trip with delay time, single phase preventer, static type energy meter with 10-60A capacity. Brass metal glands, MCB's (TPN 40A-2 nos, TPN 32A-1 no. TPN 16A-1 No.), Metallic pump socket, Servo Motor.
2.24.6	Operating Features	<ul style="list-style-type: none">Cable entry from top, response time-5, milliseconds, should with stand 150% load on surge duty, capacity of terminal should be 150% of rated current, Dimmer with CRGO core, separate Auto/Manual facility, plug in type control card for each phase, correction speed-105v/s, Efficiency-99.5%.
2.25	Domestic Power Distribution Board	<ul style="list-style-type: none">Required
2.25.1	Operating Features	<ul style="list-style-type: none">It would get single phase power from grid supply directly as well as stabilized power from main control panel and feed



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		power for lighting, electric geyser/solar water heating system, testing equipment, computer and printer.
2.25.2	Accessories for 2KL/3KL BMC domestic power distribution board	<ul style="list-style-type: none"> MS Powder coated 1.6mm enclosure, 32 DP Change over switch, 32A DP MCB as incoming, 3 nos 10 A MCB SP for lighting, 3 nos. 20A MCB SP for geyser/Solar Water heater, AMCU etc.
2.25.3	Accessories for 1 phase stabilizer	<ul style="list-style-type: none"> 63A MCCB for incoming, 63A phase selector, change-over and bypass switch, LED lamps, Servo controlled correction transformer, Digital V.I.F indicator for input & output, 63A terminal blocks, OV/UV trip with delay time, single phase preventer, static type energy meter with 10-60A capacity, Brass metal glands, MCB's (DP 63A=2 nos, DP32A-1 no, Dp16A-1 no), Metallic pump socket, Servo Motor.
2.25.4	Accessories for 3 phase stabilizers	<ul style="list-style-type: none"> 40A MCCB for incoming, 40A phase selector, change-over and bypass switch, LED lamps, Servo controlled correction transformers, Digital V.I.F indicator for input& output, 60A terminal blocks, OV/UV trip with delay time, single phase preventer, static type energy meter with 10-60A capacity, Brass metal glands, MCB's (TPN 40A-2 nos, TPN 32A-1 no, TPN 16A-1no) Metallic Pump Socket, Servo Motor.
2.25.5	Operating Features	<ul style="list-style-type: none"> Cable entry from top, response time-5 milliseconds, should withstand 150% load on surge duty, capacity of terminals should be 150% of rated current, Dimmer with CRGO core, separate Auto/Manual facility, plug in type control card for each phase, correction speed -105V/s, Efficiency-99.5%
2.26	Domestic Main Distribution Board	<ul style="list-style-type: none"> Required
2.26.1	Accessories for 2 KL BMC	<ul style="list-style-type: none"> MS Powder coated 1.6mm enclosure, 40A TPN MCB for incoming, 32 A TPN MCB for feeding refrigeration panel, 20 A TPN MCB for feeding starter of milk pump, 32A DP MCB for feeding Domestic Power DB, 20 A TPN MCB as spare.
2.26.2	Accessories for 3 KL BMC	<ul style="list-style-type: none"> MS Powder coated 1.6mm enclosure, 60A TPN MCB for incoming, 40 A TPN MCB for feeding refrigeration panel, 20 A TPN MCB for feeding starter of milk pump, 32A DP MCB for feeding Domestic Power DB, 20 A TPN MCB as spare.
2.26.3	Earthing	<ul style="list-style-type: none"> As per IS:3043-1987 (reaffirmed 2001)-"Code of practice for earthing". Pipe type earthing with funnel at top-4 nos to be provided with distance between each pit as per local statutory requirement, suitable GI Strip (minimum 25x3mm) to be used for connecting earth pit with nearest equipment earthing point. From this point earthing to other points can be looped by suitable GI Strip or PVC insulated copper conductor cable of green color (size minimum 1 x 4 sq.mm). the Scope of work includes excavation for the earth pit, construction of suitable chamber, filling with necessary materials (e.g Charcoal & salt) and complete with cover. Supplier will test and demonstrate the resistance as per local EB requirement and furnish record as required.

3.0 Refrigeration Unit:		
Sr. No	Particulars	Technical Specifications
3.1	Standard adopted for conditions of 48 Deg. C ambient conditions	ARI Standard 520-2004 applicable for refrigeration units operating at higher ambient temperature conditions. To facilities for milk collection of BMCs operating as per ISO 5708 Type 2 II standard.



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3.2	Design Parameters	0 Dec. C evaporation and applicable discharge temperature at minimum 60 Deg C condensing temperature.
3.3	Type	Direct Expansion
3.4	Type of Refrigerant	Freon 22 or CFC Free Refrigerant
3.5	Cooling Capacity of each Compressor (Scroll type make Danfoss)	Adequate capacity to ensure milk cooling time periods specified and ambient conditions of 48 Deg C mentioned above. Compressor (make Danfoss) selected should be compatible for multiple refrigerants including future refrigerant R 407C.
3.6	Number of Compressor (Scroll type make Danfoss)	For 2KL & 3KL- Two
3.7	Type of Compressor (Scroll type make Danfoss)	Hermetically sealed reciprocating/Scroll energy efficient
3.8	Type of Condenser (Scroll type make Danfoss)	Air Cooled. Condensing temperature should not be less than 60 Deg C.
3.9	Condenser Surface Area	Design and provide substantially adequate condensing area to meet functional requirements of the refrigeration unit in very hot conditions specified above.
3.10	Receiver Volume	6 Ltrs minimum
3.11	Condenser Fan	With internal thermal protection device, Enclosure shall be of metal (Plastic body is not permitted)
3.12	Pump down system	Required
3.13	Protective Grill	To provide removable wire mesh screen in front of condenser fins.
3.14	Expansion Valve (make Danfoss)	Thermostatic expansion valve (make Danfoss) with MOP (minimum operating pressure)
3.15	Drier, Solenoid Valve, Sight Glass, Fan and receiver (make Danfoss)	Required for safe and efficient operation of the unit
3.16	Accessories	<ul style="list-style-type: none"> Isolation valves at suction & discharge sides of the compressors (Scroll type make Danfoss), All pipes, valves, fittings & controls shall comply with the latest relevant National or International code applicable, Copper piping between BMC and condensing unit shall be supported/routed by cable tray and cable tray supports. Condensing unit should be placed on platform.

4.0 Milk Pump Feeding System for accessories		
Sr. No	Particulars	Technical Specifications
4.1	Balance Tank with SS Strainer	The tank and strainer to be fabricated out of 1.6mm SS 304 sheet general arrangement drawing shall be approved by NDDB.
4.2	Balance Tank Capacity	Minimum 220L
4.3	Tank accessories	<ul style="list-style-type: none"> Outlet with 38mm butterfly valve with expandable union and adjustable ball feet (Min. 50mm vertical) SS removable cover with handles. SS Strainer made from 1.6mm thick SS plate with perforated plate having 2mm dia. Holes (removable type) Outlet to end in cup type for easy draining of milk and CIP solution.
4.4	SS 304 Milk Pump	<ul style="list-style-type: none"> Centrifugal in SS construction
4.5	Flow Rate	<ul style="list-style-type: none"> 5000LPH for 2KL BMC 10000 LPH for 3KL BMC
4.6	Head in mwc	<ul style="list-style-type: none"> 10m
4.7	Pump inlet/outlet	<ul style="list-style-type: none"> 38/38mm with SMS unions for 2KL 38/51 mm with SMS Union for 3KL
4.8	Pump Accessories	<ul style="list-style-type: none"> Adjustable ball feet (min. 50mm)



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		<ul style="list-style-type: none"> One spare mechanical seal to be provided Motor having 'E'/F class insulation and having IP55 protection Pump shall have SS shroud DOL starter for operation
4.9	Food Grade tanker loading/unloading hose pipe	<ul style="list-style-type: none"> 10 meters length and size 38mm With SS cap, chain and union
5.0 Water Handling System for BMC		
Sr. No	Particulars	Technical Specifications
5.1	Water Pump with foot	Mono block for filling the OH tank
5.2	Capacity	0.5 HP, 10 mwe
5.3	Waterline schematic indicating valves/fittings etc	The OH tank to supply water to BMC for cleaning and washing, Also, the water shall be supplied to ETC Solar water heater mounted on roof of building. Sketch to be provided
5.4	HSPE Water Tank 1000L	The tank shall conform to ISI:12701/96 rotational moulded polyethylene (HDPE) heavy duty, hygienic construction, closed type with manhole for cleaning & maintenance
5.5	Tank mounting arrangement for water tank	Sturdy structure of MS angle of size 35x35x5 mm duly pre-treated and hot dip galvanized after fabrication or tubular structure with powder coating could be provided. The mounted tank should have approach ladder etc. Please the tank at convenient height to gravity feed the water to BMCU for cleaning etc.
5.6	System Interconnecting Piping	Piping for cold water should be of CPVC ISI market. Piping is required between cold water tank outlet to solar water heater unit and other point in BMC area.

6. DG Set, MAKE: Kirloskar		
Sr. No	Particulars	Technical Specifications
6.1	General operating and design conditions	<p>The DG set shall be of capacity:</p> <ul style="list-style-type: none"> 15 KVA Single/Three phase, air or water cooled for 2KL BMC 20 KVA Water Cooled for 3KL BMC <p>The DG set should be heavy duty design, industrial type, rated for continuous operation for the refrigeration system, milk tank agitator & milk dispatch pump, hot water geyser (approx. 2.0 KW), AMCU, Lightings, Ceiling Fan.</p> <p>The diesel engine and alternator should be mounted on specially designed combination base plate and MS structure of extremely rigid fabrication. The base frame should be suitable for mounting the set on AVM pads over the foundation. (*Purchaser to specify the cooling arrangement required for DG Set)</p>
6.2	Confirmation to regulatory norms for environment and Approval from Local authorities	<ul style="list-style-type: none"> DG set should carry a valid approval certificate issued as per CPCB norms complying with the provision of the Environment (Protection) second Amendment Rules 2002, vide notification no. G.S.R. 371 (E), Dated 17th May 2002 & amended by GSR 448 (E) dt. 12/07/2004. Also, complaint with new CPCB II norms applicable from April, 1 2014. The exhaust pipe with exhaust muffler with insertion loss of minimum 25db (A) is connected to the exhaust manifold preferable with flexible bellows. In case the DG Set is located within the BMC building, the exhaust pipe with insulation & cladding of adequate length be provided extending the original pipe over the roof of the building to avoid pollution in and around the location.



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		<ul style="list-style-type: none"> Supplier to obtain the approval of Local authorities in case it is required by the rules.
6.3	Diesel Engine	<ul style="list-style-type: none"> The Diesel engine should be suitable for Power Generation application type air or water cooled and capable of developing required BHP when running at 1500 rpm under NTP conditions. The engine should be built to IS 10000/ISO 3046/BS 5514/649 and rated for continuous running of 24 hours with an overload capacity of 10% for a period not exceeding 1 hour in any 12 hours running. Diesel engine upto 20 kW should have valid BIS license and certificate clearly mentioning use for 'General purpose application as per IS 10001 norms. Engine ratings should be for operation at full load condition and should be suitable to take 100% block load. Self-starting arrangement with 12V suitable rated heavy-duty Lead Acid accumulator type battery with Solid-state battery charging arrangement and cables. Standard set of tools. First fill of Lubricating oil, First fill of coolant, Lubricating oil pressure & temp, gauge Control panel for engine with engine safety temperature, V-belt failure, low lube oil pressure, low water level in radiator auxiliary failure, air cleaner choke indicator. Steel Diesel Storage barrel of 200 lit capacity with manual pump.
6.4	Engine Instrument Panel (Mechanical and/or electronic gauges)	<ul style="list-style-type: none"> Consist of Ignition key, Starting g push button, Lubricating oil pressure gauge, Temperature gauge for lubricating oil, RPM meter (Analog Type) Battery Charging ammeter
6.5	Alternator	<ul style="list-style-type: none"> The engine should be closely/flexible coupled to suitable self-excited, self-regulated (through an AVR) alternator developing required kVA at 0.8 power factor, 1 phase/3 phase, 50 cycle/sec, 230 volts AC power supply under NTP conditions when running at 1500 RPM. The alternator should be brushless type, screen protected and fitted with end shield and ball roller bearings. The alternator shall have 'H' class of insulation. It shall conform to IS 13364 (Part 1) 1992 upto 20 kVA, IS 13364 (Part II) 1992 or IS 4722 of 1992 above 20 kVA.
6.6	Control Panel	<ul style="list-style-type: none"> The diesel generating set to have suitable control panel duly pre-wired with the following instruments: One ammeter with selector switch, one energy meter with selector switch, Hour meter, one suitable capacity MCCB with overload and short circuit protection to disconnect power supply in case load of generating set increases beyond permitted limits. The rupturing capacity of the MCCB should not be less than 25 kVA. One set of indicating lamps and control fuses.

. DG Set, MAKE: Kirloskar		
Sr. No	Particulars	Technical Specifications
7.1	Installation of BMCU and supporting accessories	<ul style="list-style-type: none"> The installation work should be carried in the best workman like manner in conformity to the relevant codes of practices of BIS standards applicable for mechanical & electrical installation.



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		<ul style="list-style-type: none"> Installation of all equipment & interconnecting piping, including minor civil works such as earthing pit & chamber, providing stainless steel pipe supports, SS base plates, clamps, valves, unions etc. required to secure the equipment & piping to walls and floors is to be provided. Supply, laying, connecting, terminating all necessary electrical and control cables through the cable trays, GI pipes/conduits, cable gland sockets at ends, isolators, junction boxes etc are included in the scope of the work. Cable trays and supporting steel members such as Galvanized angles/channel/flats shall be used and fixed/installed at appropriate places to ensure safe installation. The laying of cables on the floor or under the floor is not permitted except for milk pump. Copper piping between BMC tank and condensing unit shall be supported/routed by cable tray and cable tray supports.
7.2	Interconnecting piping for the entire plant	<ul style="list-style-type: none"> SS 304 piping 38mm dia, 1.6 mm thick Provide and install extended pipe for connecting milk hose for milk tanker loading-unloading
7.3	Cables & Electrical	<ul style="list-style-type: none"> Cable between DG Set and main panel shall be steel armoured. For all electrical cables suitable water tight cable glands and lugs should be used at ends. Specification for PVC insulated cables (for voltage up to 1100 V): Part 1 with copper conductor (revised). Flexible electrical connections shall be made PVC insulated copper conductor cable not less than 24/0.20mm in size (see IS 694 (Part 1-1964*) and earth continuity conductors of PVC insulated copper conductor shall be provided.
7.4	Tool Box with required tools	<ul style="list-style-type: none"> A standard tool box of GI sheet with necessary tools for normal maintenance. It should include Electric Tester, Screw Driver Set, Allen Key 3mm & 6mm, Pipe Wrench 12" Long, Screw Spanner 6", Fix Spanner Set 6-27, Gasket for SS Unions/Valves-3 Sets and extra mechanical seal for pump.
7.5	Operation manuals	<ul style="list-style-type: none"> 2 Set i.e in local language and one in English
7.6	P&I Drawing for the complete system offered	<ul style="list-style-type: none"> Drawing to be provided
7.7	Commissioning	<ul style="list-style-type: none"> Supplier shall arrange commissioning & performance trials runs of the bulk milk cooling system ensuring that BMC meets all performance parameters. The supplier shall supply all the consumables except for DG Set required during diesel commissioning of the plant. Diesel for commissioning of DG Set shall be provided by purchaser. In case of unavailability of Milk, Supplier has to take trial on Water.
7.8	Training	<ul style="list-style-type: none"> Supplier shall arrange for training of the operating team of DCS for efficient operation and maintenance of the complete system for 3 days.
7.9	Warranty	<ul style="list-style-type: none"> All equipment (including bought out items) supplied & installed by the contractor shall have a comprehensive warranty of 18 Month from date of commissioning.
7.10	AM Services for 2 years and placement of service Engineer	<ul style="list-style-type: none"> Obligation of BMC Package supplier for providing After Sales Service/Warranty claims for the bought-out components supplied with BMC package.



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		<ul style="list-style-type: none"> One resident service engineer to be posted for 50 BMC is to be posted by the supplier for effective and timely after sales service.
7.11	Inspection	<ul style="list-style-type: none"> Client reserve right to inspect all the components of the bulk milk cooling system during fabrication/manufacturing stage, finished stage before dispatch of the equipment's. The milk cooling tank shall be checked with dye penetration test for welding defects, surface roughness check, water tightness test/hydraulic test.
7.12	Fire Extinguisher	<ul style="list-style-type: none"> Supply and Install one no ABC Stored Pressure type fire extinguisher of capacity 1 kg with each. 2KL BMC-02 nos 3KL BMC-03 Nos

8. Optional Items: The items listed below shall be identified by the Purchaser for inclusion in the BMCUs being proposed for JMF.

Note:

- The JMF shall identify the optional components from the list given below for efficient and effective operation of BMCU.
- For hot water generation only one type of water heating system is to be selected out of the 3 options given below.
- The bidder shall quote the price for the items identified in the enquiry. This price shall be considered in the bid price for arriving at comparative price.

Sr. No	Particulars	Technical Specifications																				
8.1	Hot Water Generation Unit- Electric Geyser (Cap.-50 ltrs), 1 Phase, 2KW	It should be supplied with a standard MS Box having 25 A SP MCB & 25A metallic socket and plug, ¾ inch CU/SS/CPVC Water piping to geyser to outlet control valve are included in supplier's scope. One length of 10-meter PVC hose pipe of ¾ inch size with 2 no. clamp loose shall be supplied for water washing purpose. One spare heating element to be supplied along with the geyser.																				
8.1	Hot water Generation Unit-Heat recovery Unit with necessary piping	<ul style="list-style-type: none"> This system shall be for heating water using heat of the discharge gas of condensing unit of BMC, It shall consist of evaporator type heat recovery unit. Tank shall be of 200 litre capacity in SS 304, 1.6mm constructions with suitable insulation and outlet with 25mm ball valve, Estimated length of the piping is 10 meters, however to be supplied as per actual requirement. All controls shall be manual. The hot water should be available at around 70 Deg. C General Arrangement Drawing-Shall be approved by NDDDB.																				
8.1	Hot Water Generation Unit- Evacuated Tube Collectors (ETC) based Solar Water Heating System, Cap. 200 LPD The Unit should be MNRE approved	a. ETC- Water Tank Specification: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Capacity of Tank</td> <td>200 LPD</td> </tr> <tr> <td>Material</td> <td>Stainless Steel 316, 2B finish 22 SWG</td> </tr> <tr> <td>Type</td> <td>Cylindrical- horizontally assembled</td> </tr> <tr> <td>Size</td> <td>Ø460, Length 2110.</td> </tr> <tr> <td>Insulation</td> <td>P U F .50mm high density</td> </tr> <tr> <td>Outer Cladding</td> <td>Pre-Coated galvanized Steel/Aluminium</td> </tr> <tr> <td>Outer Finishing</td> <td>Pure Polyester Powder Coating Finish</td> </tr> <tr> <td>Outer Finish Color</td> <td>Golden Yellow & Black combination</td> </tr> <tr> <td>Back up Heater</td> <td>2kW with thermostat control 230V AC.</td> </tr> <tr> <td>Tank Stand & Support Assembly</td> <td>Fabricated MS angle of size 38x38x4mm duly pre-treated and hot dip galvanized after fabrication.</td> </tr> </table>	Capacity of Tank	200 LPD	Material	Stainless Steel 316, 2B finish 22 SWG	Type	Cylindrical- horizontally assembled	Size	Ø460, Length 2110.	Insulation	P U F .50mm high density	Outer Cladding	Pre-Coated galvanized Steel/Aluminium	Outer Finishing	Pure Polyester Powder Coating Finish	Outer Finish Color	Golden Yellow & Black combination	Back up Heater	2kW with thermostat control 230V AC.	Tank Stand & Support Assembly	Fabricated MS angle of size 38x38x4mm duly pre-treated and hot dip galvanized after fabrication.
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FTC CAMPUS, SEC-2, DHURWA, RANCHI – 834004
Ph.: +91-(0651) 2543062, MOB: 7544003404/7360035219,
Email: purchase@jmf.coop, Website: www.jmf.coop



		Piping, and Valves etc	Required to supply water for cleaning
		Tank Testing	Factory pressure tested for normal systems is at 2kg/cm ² .
		Normal Working pressure of the System	Less Than 1 kg/cm ²
		b. ETC System- Technical Specification Collector	
		Number of Tubes	28 No's
		Number of Tubes	28 No's
		Evacuated Tube Dimensions	Outer Diameter-47 ±0.7mm, Inner Diameter- 37±0.7,,mm
		Total Tube Length	1500 ±5mm
		Type of tube selective coating	Graded A1-N with Copper under Coating
		Solar absorbance	>0.93
		Solar Emittance (at 80°C)	<0.06
		Evacuation between Outer & Inner Tubes	5 x 10 ⁻³ Pa.
		Rated Pressure	0.1 Mpa (1Kg/Cm ²)
		Stagnation Temperature	< 300° c
		Frame	Anodised Aluminium Channels of 1.6mm thickness, Aluminium rectangular box for bottom tube holder
8.1		c. Interconnecting piping from hot water tank outlet to one point in BMCU area shall be of GI B (medium class), ISI marked duly insulated with rock wool 50mm insulation & 22 G aluminium cladding. All fittings, accessories, valves, vent filter etc essential for smooth functioning should be provided. General Arrangement Drawing-Shall be approved by NDDB	
8.2	Insulated hot water storage tank-200 lit capacity	The tank shall be located inside the BMCU building placed at convenient location at feasible height. The tank shall be non-pressure type of capacity 200lit and made up of SS confirming to AISI 304 with minimum 1.2mm thick sheet & TIG welding. The tank shall be insulated with thermal grade (32kg/cum) PUF of thickness 40mm and cladded with 22 Al sheet. A SS drain with CC Cock shall be provided to take out sediments periodically. General Arrangement Drawing-Shall be approved by NDDB	
8.3	Can Tipping Bar	Should be a horizontal wooden bar supported on two legs of MS 'B' class pipe and flange on bottom of the pipe for grouting. Top bar should be made of teak wood. All MS surfaces ae to be painted with a coat of epoxy primer followed by two coats of epoxy paint of ivory color after thorough de-rusting. General Arrangement Drawing-Shall be approved by NDDB	
8.4	Can Scrubber Required for 3 KL BMC	The Capacity of can scrubber shall be 425 litres & It shall be having SS 304 bath made from 2mm thick sheet. Cleaning nylon brushes shall be driven by 1 HP 1440 rpm three phase electric motor and gear box. For motor and gear box, SS 304 cover to be provided for avoiding splash of water. Supply of DOL electric starter for can scrubber is included in scope. General Arrangement Drawing-Shall be approved by NDDB	



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8.5	Can Drip Saver Required for 3 KL BMC	<p>This shall be used to recover milk residue in milk cans after dumping milk of can in milk weigh bowl. A pipe structure to keep 4-5 nos. 40 litre milk can in inverted slant position to drain out manually residue milk in can & then to collect it in a tray. Pipe structure- This to be made of 50mm GI B class pipe, Collection tray. This to be made of 2 mm thick SS 304 sheet with slope towards one end & a 25mm SS Ball valve. Approximate dimension of can drip saver 2000x465x1250mm.</p> <p>General Arrangement Drawing-Shall be approved by NDDB</p>
8.6	Milk Dump Tank cap 1000L Required for 3KL BMC	<p>SS 304, Minimum 2 mm thick sheet, 1000 Litre rated capacity, 1100 litre (Gross), Rectangular type, Slope-1:15 Towards outlet (from all 3 sides), All weld joints ground smooth. ALL SS Surfaces to be polished to 150 grit. All inside corners shall have minimum radii of 25mm. The top edges of the tank shall be bent outward smoothly with SMS 51mm BFV valve at outlet.</p> <p>General Arrangement Drawing-Shall be approved by NDDB</p>
8.7	Milk Weigh Bowl cap: 500Ltr Required for 3KL BMC	<p>Bowl to be fabricated from 2mm thick SS 304 sheet with holding capacity of 500litre with SMS 51mm BFV at outlet. Bowl to have sufficient slope towards outlet where a special liver operated SS valve complete with gasket (approximate 245mm) and other accessories is fixed. Bowl to be complete with SS wire mesh strainer complete with mounting bracket & grill but without anti splash unit. Complete SS bowl to be made using standard procedures for SS fabrication of vessels for handling milk.</p> <p>General Arrangement Drawing-Shall be approved by NDDB</p>
8.8	Weighing Machine Required for 3KL BMC	<ul style="list-style-type: none"> • Weighing Mechanism- It should be fully electronic with load cells. The complete mechanism shall be housed in a dust/water proof enclosure & fitted with damping facilities and all other adjustments. An electric heater should be provided to prevent condensation inside the enclosure. Load cell to have IP 65 Protection & to withstand over load of 300% minimum to take care of the impact loading when milk is poured into milk weigh bowl. Considering this, there should be at least two load cells of capacity 1000kg each. • Display Unit: Weight of milk to be indicated by bright 7 segments LED of 25mm height, having display resolution of 1/6000 on a table top SS display unit. Accuracy-100gm. Display unit to have features of Tare (upto 50% of machine capacity), Weight addition upto 6 digits & cumulative weight through a 8 Keys key board. Unit to have calibration facility through software. System to be suitable for operation with 30V, 50Hz, operating temperature of 0-48 deg C, operating humidity of maximum 85% RH (noncondensing). Unit to have in built battery backup for 20 hours. Unit to have facility for interfacing with a PC for entry/recording of Weigh data. • Supporting Structure: Hangers should be provided for suspending weigh bowl. The complete weighing machine shall be supported on a rigid bridge type steel structure. The two main legs for supporting structure to be of Mild Steel with spray painted with a coat of Epoxy primer followed by two coats of Epoxy paint, all other structure to be of SS 304. • Complete weighing system to meet the requirement and approval of Indian Weight & Measure Department & after installation at site, the supplier to obtain the stamping. • Supporting Structure: Hangers should be provided for suspending weigh bowl. The complete weighing machine



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		<p>shall be supported on a rigid bridge type steel structure. The two main legs for supporting structure to be of Mild Steel with spray painted with a coat of Epoxy primer followed by two coats of Epoxy paint, all other structure to be of SS 304.</p> <ul style="list-style-type: none">• Complete weighing system to meet the requirement and approval of Indian Weight & Measure Department. <p><u>After Installation at site, the supplier should obtain the stamping certificate from local Weight & Measure Department's Inspector of State Government</u></p>
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9. Extra Spare Parts required (To be included in the cost break up)			
Sl. No.	Particulars	Spare parts	Qty
1	Milk Pump	Gasket	02 Nos
2	3 Way valve	Top & Bottom Gasket	02 set
3	Milk Pump	Mechanical Seal	02 Nos
4	SS Pipe (38 & 51 MM)	Gasket	04 Nos each
5	Milk Vat temperature card	Card	01 Nos