23.Bid identification No 514/ CSS/ TENDER/Vol-III / 2026-27

E- TENDER CALL NOTICE

FOR

Supply, Installation, Commissioning & Testing of Bulk Milk Cooler at different Milk Union Levels in the state of Odisha.

Estimated value Rs. 4,00,00,000

JANUARY-2026

CSS DIVISION, OMFED, Bhubaneswar
The Odisha State Coopertive Milk producers Federation Ltd
D-2 SAHIDNAGRA , BHUBANESWAR V-751007
PHONO 2546030/2540273/ Email cssomfed@ omfed.com

e-Procurement Notice for supply Supply, Installation, Commissioning & Testing of **Bulk Milk Cooler** at different Milk Union Levels.

Bid Identification No. 514/CSS/TENDER/ Vol-III/2026-2027

1. OMFED invites e- Tender from reputed OMFED invites sealed and separate offers for Technical & Commercial bids from reputed Manufacturers/ Distributors for supply, installation, commissioning, testing and running of Bulk Milk Cooler with all accessories. e- Tender is invited online through 'e'-procurement of Govt. of Odisha web Portal **https://tendersodisha.gov.in**. The bidders should have the necessary portal enrolment with his own Digital Signature Certificate.

2. The bidders are required to submit bids for the following items.

Name of work	Capacity	Estimated Cost (Rs) lakhs	Availability of Tender through on line bidding at https://tender Odisha .govv.in		Date of Opening	Period of completion
			From	To		
Bulk Milk cooler (BMC) of different capacity with D G Set ,Servo voltage stabilizer and weighing scale of in line capacity on composite basis	2KL	210.00	23.01.26 on 10.00A.M	10.02.26 on 3.00P.M	At 1.00 P.M Dt 11.02.2026	60 Days
Bulk Milk cooler (BMC) of different capacity with D G Set ,Servo voltage stabilizer and weighing scale of in line capacity on composite basis	5KL	160.00				
Bulk Milk cooler (BMC) of different capacity with D G Set ,Servo voltage stabilizer and weighing scale of in line capacity on composite basis	10 KL	30.00				

3. Cost of Tender Paper Rs 11,800/- inclusive of GST 18% & EMD as specified in (Technical Bid Part-I) deposit through online portal at **https://tendersodisha.gov.in**.

4. Bid documents consisting of specifications, the schedule of quantities and the set of terms and conditions of contract and other necessary documents are available on Portal: **https://tendersodisha.gov.in**. The corrigendum/amendment to this notice if required shall be published only in the OMFED web site **https://www.omfed.com** and will not be published again in the newspaper.

5. The tender paper cost / EMD and Photo Copy of **GST, PAN, Registration Certificate, Turnover Certificate, IT return & other documents as per DTCN** shall have to be attached on Portal: **https://tendersodisha.gov.in** within 10**.00 AM of 23.01.2026 to 03.00 PM of 10.02.2026.**

The pre bid meeting on dt. 04.02.2026 at 4.00PM through VC. A pre-bid meeting shall be organized by OMFED; the date and time of the pre-bid meeting is indicated in the Schedule for the Tender. Bidders wishing to attend the pre-bid meeting should inform OMFED by email (Refer Data Sheet), along with the names and email ids of the officials/ representatives of the Bidder who would be attending the meeting, at least 1 (one) working days before the pre-bid meeting. OMFED shall then send the invite for the pre-bid meeting to the email-ids that OMFED would be receiving.

However, attendance of the Bidders at the pre-bid meeting is not mandatory. A maximum of two officials/ representatives from each Bidder may attend the pre-bid meeting. All costs of the Bidder related to attending the pre-bid meeting shall be borne by the Bidder.

6. Non submission of tender cost of bid document and EMD within the period shall debar the party from participating in the online bidding system and his portal registration shall be cancelled.

7. **Techno- Commercial Bids received online shall be opened on 11.2.2026 at 01.00 P.M.** in OMFED Corporate office in the presence of the bidders. Bidders who participated in the bid can witness the opening of bids after logging on to the site through their DSC. If the office happens to be closed on the last date of opening of the bids as specified, the bids will be opened on the next working day at the same time and venue.

8. Co-Operatives, Govt. bodies, NSIC and MSME registered firms are exempted from submitting required EMD.

9. OMFED in its own interest may opt for any other procurement mode/system simultaneously along with this e-Tender process if required without assigning any reason thereof.

10. The Managing Director, OMFED reserves the right to accept/reject any or all the bids without assigning any reason thereof.

11. OMFED reserves the right to increase or decrease the quantity of the tendered items or period of delivery as per the requirement of the Federation.

12. Legal disputes if any concerning the required goods supplied & matters related thereto shall be subject to Jurisdiction of such court as exercising civil jurisdiction of Bhubaneswar only.

13 Any corrigendum / addendum will be displayed only in the OMFED web site (www.omfed.com)

14.Defaulter in earlier supply order of Omfed or suppliers black listed anywhere in the country are not eligible to participate in the bidding process of the present tender .

Managing Director

OMFED

www.omfed.com	**The Odisha State Cooperative Milk Producers' Federation Ltd.** **D-2, Sahid Nagar, Bhubaneswar-751 007.** **Ph No- (0674) 2546030/2540273/2540417,** **Fax No (0674) 2540974**

E-TENDER NOTICE

OMFED invites sealed techno-commercial offer in separate envelope from experienced manufacturers / authorized distributors for **"Supply, installation, commissioning, testing and running of Bulk Milk Cooler with all accessories."**

Interested bidders may download the Tender Document from The OMFED web site www.omfed.com only for reference. Bid document will be available in the **https://tendersodisha.gov.in** from **10.00 AM of 23.01.2026 to 3.00 PM of 10.02.2026** for bidding. **Tender cost of Rs.10,000/-+18%-GST along with E.M.D. shall be deposited through online portal at https://tendersodisha.gov.in** The technical Bid shall be opened online at **01.00 PM on 11.02.2026** at the OMFED Corporate Office in the presence of the interested bidders at Omfed Corporate Office, D/2, Sahid Nagar, Bhubaneswar – 751007. Bids without requisite EMD shall not be considered.

The **corrigendum/amendment** to this notice if required shall be published only in the OMFED web site and will not be published again in newspaper.

OMFED reserves the right to accept or reject any or all the tenders or part thereof without assigning any reason.

MANAGING DIRECTOR

INDEX

ELIGIBILITY CRITERIA

Bidders enclosed the followings below required documents in the
Portal: https://tendersodisha.gov.in of Technical Bid.

1) Tender Document Cost: The Tender Document Cost is fixed at Rs 11,800/- including GST.

2**)** EMD amount of each material for each BMC as specified in (Technical Bid Part-I) & deposit through online portal at **https://tendersodisha.gov.in**. The EMD amount to be returned after completion of tender finalization from Govt. of Odisha e-portal**.**

3) **Successful bidders shall deposit a Security Amount as mentioned at tender Techanical bid format) to the Omfed Account within 7 days of placing the purchase order, failing which the purchase order will be cancelled.**

4) Turnover; as specified in the table (Part-I: Technical bid). Turnover certificate from Chartered Accountant and latest Audited Financial result must be submitted in support of required turnover for the year of 2023-24. 2024-2025
5) Income Tax Return Acknowledgement for the Financial year 2023-24.2024-2025
6) GST Rreturn for the three-month end. Sep. to Dec -2025

7) The copy of Firm/ Company GST Registration

8) The copy of Firm/ Company PAN Card.

9) Client list and copy of orders to be provided (For credential).

10) Performance Certificate issued by client are to be furnished.
11) Sign with Seal: The complete tender documents i.e. each page of the Tender document including all annexure (necessary required documents) should be duly signed with sealed.
12) Printed technical literature / catalogue
13) Duly filled in Manufacturer authorization letter (for authorized channel partner)

- The bidder cannot stipulate any terms and condition of his own beyond the tender requirements.
- The bid shall be rejected if not completed with tender requirement.
- All statutory approval is within the scope of the bidder.
- It is mandatory on the part of bidder to quote for the entire item as mentioned in the BOQ failing which the offer shall not be considered.
- All the required documents relating to Technical bid must be submitted.

VALIDITY OF OFFER:

02 years from the date of notification.

TECHNICAL BID (Part-I)

Tenders are invited from Manufacturing Units/ Traders/ Suppliers having minimum turnover as mentioned in the table below, for Supply, Installation, Commissioning & Testing of Bulk Milk Cooler at different Milk Union Levels.

Sl no	Name of the Item	capacity	Quantity required	EMD amount (Rs in lakhs)	Bidders Minimum Average annual sales turn over for the year 2023-24 to 2024-25 (Rs)
01	Bulk Milk cooler (BMC) of different capacity with D G Set ,Servo voltage stabilizer and weighing scale of in line capacity on composite basis	2KL	20	4.20	1.50 Crore
02	Bulk Milk cooler (BMC) of different capacity with D G Set ,Servo voltage stabilizer and weighing scale of in line capacity on composite basis	5KL	10	3.20	
03	Bulk Milk cooler (BMC) of different capacity with D G Set ,Servo voltage stabilizer and weighing scale of in line capacity on composite basis	10 KL	1	0.70	
	Total		31		

The OMFED reserves the right to increase or decrease the quantity of material & delivery period specified in the schedule of requirements without any change in unit price or other terms and conditions.

TERMS & CONDITIONS

1.0 Eligibility and Qualification requirements: -

This invitation to bid is open to all eligible bidders.

2.0 FOR basis:

The quoted prices for the material shall be on FOR destination basis, inclusive of all taxes & duties, packing & forwarding charges, transportation, insurance and other incidental charges, unloading charges etc. as applicable.

3.0 Bid Security (Earnest Money Deposit) & Security Deposit (SD)

(a) Bidders are to deposit the EMD amount in the e-tender portal https://tendersodisha.gov.in.

(b) After completion of e-tender process, the bidders get their EMD amount from Govt. of Odisha e-tender portal.

(c) **Successful bidders shall deposit a Security Amount as mentioned in Technical Bid to the Omfed Account within 7 days of placing the purchase order, failing which the purchase order will be cancelled.**

(d) The SD deposited shall not carry any interest and it will be refunded after successful execution of Purchase order and issue of "No Dues Certificate" from the concerned General manager.

4.0 Period of validity of bids

Bids shall remain valid for **2Years days after the date of bid opening**,

5.0 AWARD CRITERIA

The OMFED will consider awarding the contract to the successful bidder whose bid have been determined to be substantially responsive and have been determined as the lowest quoted bid, who is determined to be qualified for satisfactory performance of the contract.

6.0 OMFED RIGHT TO VARY QUANTITIES AT TIME OF AWARD.

The OMFED reserves the right to increase or decrease the quantity of material specified in the schedule of requirements without any change in unit price or other terms and conditions. After issuing order OMFED may also cancel the whole or part thereof depending on requirement of the material during the contract period.

7.0 PARTICIPATING IN THE BID IN THE E-PROCUREMENT PORTAL:

The Bidder intending to participate in the bid is required to register in the Portal with some information about the firm. This is a one-time activity for registering in Portal. During registration, the contractor has to attach a Digital Signature Certificate (DSC) to his / her unique user ID. The

DSC used must be of appropriate class (Class II or Class III) issued from a registered Certifying Authority such as n-Code, TCS, and MTNL etc.

a) To log on to the portal the Bidder is required to type his/her username and password. The system will again ask to select the DSC and confirm it with the password of DSC. For each login, a user's DSC will be validated against its date of validity and also against the Certificate Revocation List (CRL) of respective CAs stored in the system database. The system checks the unique ID, password and DSC combination and authenticates the login process for use of the portal.

b) The tender documents uploaded by the Tender Inviting Officer in the website www.tendersorissa.gov.in will appear in the section of "Upcoming Tender" before the due date of tender sale. Once the due date has arrived, the tender will move to the "Active Tender" Section of the homepage. Only a small notification will be published in the newspaper specifying the work details along with mention of the specific website for details. The publication of the tender will be for a specific period of time till the last date of submission of bids as mentioned in the 'Invitation for Bid' after which the same will be removed from the list of Active tenders. Any bidder can view or download the bid documents from the web site.

c) If the software application has the provision of payment of cost of tender document through payment gateways of authorized bankers by directly debiting the account of the bidders, bidders will be required to avail on-line payment.

7.1. The bidder intending to participate in the bid on-line shall prepare the demand draft towards cost of bid as per IFB (except for exempted bidders) and upload the scanned copy of the draft to the portal against the bid where he is participating and the original shall be deposited to the tender inviting officer within the period specified in the "Invitation For Bid". If the Bidder fails to deposit the original demand draft towards cost of bid within the stipulated time his bid shall be rejected and action as per prevailing rule shall be taken.

7.2. In the case of any failure, malfunction, or breakdown of the electronic system used during the e-procurement process, the tender inviting officer shall not accept any responsibility for failures or breakdowns other than in those systems strictly within their own control.

7.3. Any third party/company/person under a service contract for operation of the e-procurement system in the State or his/their subsidiaries or their parent companies shall be ineligible to participate in the procurement processes that are undertaken through the e-procurement system irrespective of who operates the system.

8.0 QUALITY

Goods/Materials should be ISI marked, will be approved from OMFED. **If the materials supplied by the bidders found reject then the supplier will be blacklisted to participate in further tender process.**

8.1. Sample should be furnished along with the tender. The tenders without sample will be summarily rejected. The Federation is not liable to pay any cost for samples.

9.0 DELIVERY PERIOD: Delivery period 60 days from the date of acceptance of purchase order. If the supplier fails to execute the tender quantity, OMFED will purchase the same from any other suppliers and the differential amount will be recovered from your pending bills.

10.0 PENALTY: On failure to supply as per schedule 0.5% value of delivered quantity per week or part thereof will be deducted from the bill as penalty.

11.0 PAYMENT: Bills in triplicate shall be submitted along with a copy of P.O.

- 75 % on safe receipt of material at site in good condition.

- 15 % after successful commissioning/testing & running/report of equipment supplied.
- PSD @ 10 % of billed value excluding GST shall be retained by ordering authority for a period of 02 years from the date of successful commissioning and shall be released subject to satisfactory performance.
- Any other statutory deduction like Income tax, TDS, GSTTDS etc. as applicable

12. Penalty:

12.1 Penalty @ 0.5 % of the order value per week / or part there of shall be imposed for delay in execution beyond the time frame**.** However, the penalty amount will be Limited to 10% of the order value.

12.2 75 % payment will be made within 60 days from the date delivery & received of CMR From Milk Union

13.WARRANTEE:

13.1 The contractor warrants that the goods supplied 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 contractor further warrants that the goods supplied under this contract shall have no defect arising from design, material of workmanship or from any act or omission of the contractor that may develop under normal use of the supplied goods in the conditions. The contractor also guarantees that the goods supplied shall perform satisfactorily as per the designed/rated/ installed capacity as provided for in the contract.

13.2 This warranty / guarantee shall remain valid for 12 months after the goods, or any portion thereof as the case may be, have been delivered & handed over to the OMFED after the performance of 30 days trial run period. The OMFED shall promptly notify the contractor in writing of any claims arising under this warranty.

13.3 Upon receipt of such notice, the contractor shall, with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the OMFED.

13.4 If the contractor, having been notified, fails to remedy the defects(s) within a period of 30 days, the OMFED may proceed to take such remedial action as may be necessary, at the contractor's risk and expense and without prejudice to any other rights which the OMFED may have against the contractor under the contract.

13.5 This warranty/ guarantee shall not cover any damage/s resulting from normal wear and tear or improper handing by the OMFED or his authorized.

14. .0 <u>LEGAL DISPUTE</u>

Legal disputes if any concerning the required goods supplied & matters related thereto shall be subject to Jurisdiction of such court as exercising civil jurisdiction of Bhubaneswar only.

Documents to be submitted along with Technical Bid should be tick marked

Sl. No	List of Documents required for Technical Bid	Information	Tick Mark
01	Tender cost (Non- refundable)		
02	EMD		
03	Audited Financial statement for 2023-24 to2024-25		
04	I.T return for last 02 Years i.e. FY 2023-24 to 2024-25		
05	PAN No(Photo Copy To Be Attached)		
06	GST Registration Certificate		
07	Banker's detail of bidders along with a cancelled cheque		
08	GST return (GSTR – I & GSTR – 3B) from July 2025 to Septembers 2025.		
09	Registration certificate of the Company/ Firm		
10	Authorization letter from Original Manufacturers		
11	Client list		
12	Performance certificate given by the existing clients during last five years		
13	Experience during last five years		
14.	Service/Maintenance/replacement capability		
15	Sale and Support service capability		
16	Compliance Sheet of the Technical specification of the item		
17	Printed literature of the Item for which Tender being offered		
18	Previous Purchase order of other organization		
19	Self declaration of not black-listed any where in India		
20	Whether all the documents are properly signed with seal		
21	Whether Envelope 'Technical bid' and 'commercial bid" properly written.		

22	Whether the main envelope containing 'Technical bid '& " Commercial bid ' properly sealed /signed and properly super scribed.		
23	Certificate by the farm that they have quoted the lowest rate		

(A)

SPECIFICATION

TECHNICAL SPECIFICATION OF BULK MILK COOLER **2KL Bulk Milk Cooler**

(Single/ Three phase)

BULK MILK COOLER (Vertical Type /Horizontal/)

FUNCTIONAL REQUIRMENTS

(Bulk Milk Cooling Unit includes Bulk Cooler, DG set, Servo Stabilizer &Weighing Scale)

The Bulk cooling units shall be used to cool raw milk at the village level co-operative milk societies from the ambient temperature to 4 degree centigrade in conformity to specified ISI 5708 2A II standard.

The cooling tank shall be used for immediately cooling the milk after milking so as to conserve the quality of milk and check the growth of microorganism. It is intended for daily collection of milk. It is a hygienic container built to sanitary standards, which besides cooling also serves as buffer storage prior to transfer of milk for onwards transportation for further processing.

Two milking system has been configured such that volume of each milking is as under.

i)Milking in the morning (upto 10 AM)

60% ii)Milking in the evening

40%

The agitator provided in the cooling tank works intermittently and at a very gentle speed to avoid damage to the fat globules of milk . The agitator works only at temperatures below 20-25°C so as to conserve butter fat structure.

TECHNICAL DATA

The bulk cooling tanks shall confirm to ISO 5708 standard with categorization under Type 2AII.

Bulk Milk Cooler with Cover and Standard Accessories

Tank inner, outer, bottom laser evaporator jacket and to open able cover shall be fabricated from Stainless Steel AISI 304 material and welded with TIG process. The inner shell and all other product contact surface shall be polished up to minimum 150 grit.

The tank shall be complete with following.

- Top un-insulated cover with locking arrangement, inspection window, provision for agitator mounting an specially configured milk inlet. The top cover shall be hinged with a

rugged arrangement comprising oil filled cylinders and mechanical springs to facilitate complete opening of tank cover for inspection and tank cleaning. A proper lifting handle in SS 304 construction is provided.

- Milk inlet complete with specially designed funnel terminating in no foam inlet arrangement with SS fine wire mesh.
- Outlets complete with specially designed lockable butter fly valve size 51 mm and terminating in proper en connection with blank union.
- The insulation of the tank shall be done by injection, in situ, of high-density(minimum 40 kg/.m³, CFC free and environmental friendly) polyurethane foam without having any imperfection and hygroscopicity. The efficiency of insulation is confirmed as per the requirement of ISO 5708 2A II (latest version) when the refrigeration unit is not working.
-Ball feet specially made to prevent tempering, which could result in erratic measurement.
- Agitator in SS 304 construction complete with direct mount specially designed motor. The agitator is designed for producing uniform distribution of fat in milk.

1.2 Milk Filter

Each system shall be provided with one AISI 304 filters with SS fine mesh suitable to filter extraneous matter such as dust particles, hay flies, cow dung etc. The filter shall be on balance tank. The filter shall be designed and installed in such a way that it can frequently & easily be cleaned. This milk filter shall be provided with balance tank only.

1.3**Stainless Steel Sanitary Milk Pump for loading and unloading of milk :** A sanitary design mono block pump of 10 KLPH @ 10 MWC and driven by three phase motor in standard design for all the BMC Modules is included in the scope. The pump shall have SS vis carbon seal and will be provided with 38 mm inlet and 51mm outlet connections. The pump shall be shrouded with SS 304 cover and the impeller and product conduct parts in SS 304 material.

1.4 CIP Solution Holding Tank for BMC

The bulk milk storage tank and the piping system are designed for manual cleaning. As required one number AISI 304 plain un-insulated tank for capacity 500 ltrs. with cover shall be separately provided to prepare CIP solution for use white cleaning. The CIP solution shall be prepared in hot water manually. It shall be provided only for gravity feed systems. For pumped feed the balance tank shall serve as CIP Solution Preparation and Holding.

2.0 Refrigeration Unit

The refrigeration system is designed for operation on R 404 / any CFC free refrigerant as per current pollution Norms. For reciprocating/scroll compressors. The condensing units shall meet the latest safety standards. The System has to run on **SCROLL/RECIPROATING COMPRESSOR.**

The refrigeration system should be designed with twin condensing units. The total evaporator circuit is divided in two segments and each segment is connected to an independent condensing unit in case of twin condensing unit.

2.1 **Compressor** – Hermetically sealed reciprocating/Scroll compressor complete with drive motor. The motor is fully enclosed suitable for specified electrical supply. It is confirmed that the hermetic is provided with thermostat temperature sensor for protection against excess heating due to over loading and short – circuiting.

2.2 **Condenser**– Air-cooled, screen protected compact condenser unit comprising of

finned condenser coils in several rows. Condenser fans of reputed make are fitted for the duty. The air circulation fans shall be induced draft type that will ensure blowing the air from inside to outside thereby making the system suitable for dusty and dry areas.

2.3 **Receiver** - A suitable size liquid receiver is included in the circuit of each condensing unit that would hold the refrigerant during maintenance and otherwise during the pump down cycle at the end of operation.

2.4 Thermostatic Expansion Valve – A thermostatic expansion valve shall be maximum operating pressure (MOP) type to ensure optimum quantity of refrigerant to the evaporator. It shall be ECTL make with suitably sized orifice if ECTL condensing units are considered and Danfoss Make if Danfoss condensing units are considered.

2.5 Evaporator– The Tenderer should ensure maximum efficiency of supplied system by using Laser welded evaporator having max. 5mm-9mm welding for max. cooling surface area with operating pressure of 30 bars and crash test pressure of 60 bars. Tenderer can be asked to show the sample of evaporator plate used. The evaporator shall be laser welded plate jacket put at the bottom plate of the inner tank. The total evaporator area is divided and separated in to two sections and each section shall be operated by one condensing unit. All connecting pipes terminating outside the tank are of stainless steel construction. The evaporator plate should be laser welded for all capacity bulk milk cooling tank.

2.6 **Refrigerant Pipes & Fittings and Controls** – Compressors are provided with isolation valves to ease the maintenance. Copper/SS tubing for refrigerant shall be properly laid to facilitate attending the leakage if occurred during operation without dismantling the total system. All pipes are properly clamped on fixed support and sponge insulated for protection.

3.0 ELECTRICAL CONTROL PANEL

Three control panels namely.

1) Main control panel with servo voltage stabilizer
2) Refrigeration control panel
3) Milk tank control panel are included in the scope.

Refrigeration control panel and milk tank control panels and the main control panel shall be conforming to following specifications:-

3.1 Main Control Panel with Servo Stabilizer

Main Control Panel

This panel should be suitable to tap the incoming State Electricity Board supply and feed the refrigeration unit, agitator motor and milk unloading pump (from balance tank) and dispatch pump. The DG set should be hooked up with this panel through a **'manual change-over-switch'** in order to operate the DG set in place of State Electricity Board supply and & when required. It should be provided with necessary phase indication lamps (LED type), contractors, MCBs, ammeter, Voltmeter, energymeter, frequency-meter, push buttons, DG set running hour meter etc. A battery charger to trickle charge the battery when the DG set is in operation (charge indications shall be displayed on the panel) should be provided.

3 phase Voltage stabilizer (servo type) and single phase preventor: The system should have Voltage Stabilizer conforming to following features and single phase preventer of suitable rating:

- Input Range Phase – 300 to 325 VAC (three phase power supply)
- Output self adjustable for a range of ± 5%
- Supply Frequency - 47 to 53 Hz

- Load & Line Regulation – 1%
- Output A.C. Voltage correction for wide input variations
- No output waveform distortion
- Fast correction of output voltage :20V/sec.
- Auto/manual operation facility
- Under –voltage and over voltage cut-out arrangement Voltmeter with facility to read input or output voltage
- High efficiency
- Compact and modular construction for ease in servicing
- M.C.B. on input circuit
- The ratings considered for BMC 63 KVA

3.3 <u>Refrigeration Control Panel :</u>

One number control panel in dust and vermin proof design in stainless steel enclosure suitable for mounting one the wall is included. The panel is pre-wired to terminal connections and shall comprise of the following:

- In coming MCB to receive power from main control panel (In stabilizer) Line voltage Controller to guard the compressor against voltage supply fluctuation.
- Sequential controller with timer delay arrangement to avoid surge on power supply.
- Selector switch for auto/manual mode of operation.
- One number Switchgear i.e. contractors and overload relay for the motor of compressor, condenser and agitator.

3.4 Milk Tank Control Panel

This panel shall be mounted on the bulk milk storage tank together with refrigeration control panel. It is a pre manufactured control panel in SS 304 construction in dust and vermin proof design comprising the following:

- Digital Temperature Indicator and display range (0 to 100 Deg.C)
- Selector facility for selecting operation of agitator and compressors on auto or manual arrangement.

3.5Cables & Electrical Switch Gears

The electrical switchgears as required are included in the control panels mentioned above. All power and control cabling between Main Control Panel. Refrigeration Panel and milk panel shall be flexible un-armoured, wherever laid through conduits. The conduits shall be heavy duty PVC type.

Earthing shall be standard copper plate earthing should be provided for DG set Body earthing of all panels and Neutral line confirming to IE rules. Supply of cables including earthing cable is within the scope of the bidder.

4.0 <u>Pumped Feed System</u>

<u>Inter connecting and Fittings :</u> One lot of SS pipes and fittings shall be supplied to interconnect the bulk cooler with balance tank, milk pump and tanker unloading hose. The piping shall include necessary butterfly valves, SS unions and support pipe holders. SS prop support shall be used to hold SS pipe holders for supporting from walls/floor. The SS 304 inline strainer shall be provided before the balance tank.

Balance Tank: A plain un-insulated construction balance tank cap 500 L for 5KL/10 KL 250 Ltr for 2KL complete with cover, SS 304 ball feet, and inlet and outlet connection is included to receive milk after weighment by direct tipping. A design of the balance tank shall be such that no milk should leave in the balance tank after reception.

Tanker loading Hose 38mm: A nylon braided hosepipe for unloading milk from the cooling tank shall be supplied. A length of 10 mtrs. is considered in the scope of supply.

4.1 .INSTALLATION,COMMISSIONING& TRAINING

Installation

The price quoted for installation and commissioning is considering that the entire lot of bulk coolers shall be supplied installed, commissioned and handed over for use within the period specified.

The necessary pre-requisites on building, water and mains supply shall be made available timely including the availability of technical/skilled operator to be trained.

Milk Unions shall make necessary arrangements at respective sites to store the dispatched material including its safe custody in case the site is not ready to take up installation. The payments against supply shall be made in the building as per pre-decided time schedule and the work shall be taken up only when the site is complete as per requirement and handed over for installation.

The scope of installation shall be within specified battery limits and exclusions.

4.2 Commissioning :

The commissioning of the bulk coolers along with the performance trial shall be done at each bulk-cooling site. In case milk is not available in adequate quantity the performance test i.e. capacity trial shall be conducted on water with the results deemed to have concluded the performance trial.

A period of two/three days at each collection center is estimated and included for performance trial and commissioning to have over the installation.

4.3 Training

Tenderer shall arrange for training of the team of DCS staff for efficient operation and maintenance of the complete system. **8.4 Tool Box and Operation Manual**

A GI Sheet toolbox containing one set of all necessary tools required for regular maintenance of the unit shall be supplied along with the BMC.

Two set of operation & maintenance manual in Hindi and English containing complete details of starting, putting off, critical checks and day-to-day maintenance of the complete system shall be supplied. The manual shall also have the required electrical circuit diagrams.

Annexure -II

DIESEL GENARATOR
TECHNICAL SPECIFICATION OF D.G.SET
(Preferably : Kirloskar/ Mahindra/ Eicher/ Ashok Leyland

Sl no.		Description	Specifications Required
1.		General Operating and Design conditions	The DG set shall be of capacity: • 15 KVA **Single/ Three phase**, air or water cooled for 2 KL BMC . 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. 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.
2.		Confirmation to regulatory norms for environment and Approval from Local authorities	• 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 compliant with new **CPCB IV** norms applicable from June , 2024. • The exhaust pipe with exhaust muffler with insertion loss of minimum 25 dB (A) is connected to the exhaust manifold preferably 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. • Supplier to obtain the approval of Local authorities in case it is required by the rules.
3.		Diesel Engine	• 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 up to 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, • 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 lub oil pressure, low water level in radiator auxiliary failure, air cleaner choke indicator. • Steel Diesel Storage barrel of 200 lit capacity with manual pump
4.		Engine Instrument Panel (Mechanical and/or electronic gauges)	Consist of Ignition key, Starting push button, Lubricating oil pressure gauge, Temperature gauge for cooling water, Temperature gauge for lubricating oil, RPM meter (Analog type), Battery charging ammeter
6.		Alternator	The engine should be closely / flexible coupled to suitable selfexcited, 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 IS13364 (Part 1) 1992 up to 20 KVA, IS 13364 (part II) 1992 or IS 4722 of 1992 above 20 KVA.

5		Control Panel	The diesel generating set to have suitable control panel duly prewired 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 kA. One set of indicating lamps and control fuses.

Signature:

Seal:

Annexure - III

THECHNICAL SPECIFICATIONS FOR STABILIZERS

Sl no.	Particulars	Technical Specifications
1.	Servo Voltage Stabilizer	Required for stabilizing the power supply to BMC from grid or DG set. 15 KVA - 1 or 3 Phase for 2 KL BMC
2.	Voltage range	90 to 260 V for 1phase and 260 to 500 for 3 phase BMC
	Voltage Out Put	230 V +/- 1% for Single Phase 415 V +/- 1% for 3 Phase
	Voltage correction	35V/Sec
3.	Rating	15 KVA- 1 or 3 Phase 25 KVA - 3 Phase
4.	MOC, thickness & type of structure	MS powder coated , 1.6 mm & pipe structure
5.	Accessories for 1 phase stabilizer	63A MCCB for incoming , 63 A phase selector, changeover and bypass switch, LED lamps, Servo controlled correction transformer, Digital V,I,F indicator for input & output, 63 A 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 63 A-2nos, DP 32 A-1 no, Dp 16A-1 no), Metallic pump socket, Servo Motor.

6.	Accessories for 3 Phase stabilizer	40 A 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 32 A-1no, TPN 16 A-1no), Metallic pump socket, Servo Motor.
7.	Operating features	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-105 v/s, Efficiency-99.5%.

Annexure IV

SPECIFICATION OF WEIGHING BALANCE

Platform type Electronic Weighing Machine Standard

Model DB-1 H with SS Plat form size 500 MM X 500 MM

Display digit - 5 Nos. Power source - AC 220V/50HZ

Capacity : 200 Kg. X 20 Gms.

- **Soft Touch tact switch**
- **Easy to road VFD Display**
- **Unique design steel frame with metallic grey powder coating**
- **Solid Back Rail**
- **single piece frame work system**
- **Hold function**
- *Operating Temp **(10**°C to 40 °C)*

N.B: Stamping & verification of Weighing Machine by the weights & measure Deptt. shall get done by the Machine supplier at their own cost.

TECHNICAL DATA SHEET FOR BULK COOLING UNIT.2KL BULK MILK COOLER

	Description	2000 **(Single phase/3 Phase**))
A.	**MILK TANK**	
1.	Capacity – RATED/GROSS	Rated Gross – 2000/5000 L
2.	Make and model	To be specified by Bidder
3.	Material used for construction (SS304/3016)	To be specified by Bidder
4.	Overall dimensions (without CDU) (LXWXH)	To be specified by Bidder
5.	Weight (with CDU)	To be specified by Bidder
6.	No. and RPM of agitators	To be specified by Bidder
7.	CIP facility	To be specified by Bidder
8.	Thickness of Inner shell	To be specified by Bidder
9.	Thickness of Outer shell	To be specified by Bidder
10.	**INSULATION:**	
11.	Type	To be specified by Bidder
12.	Thickness (mm)	To be specified by Bidder
13.	Density	To be specified by Bidder
14.	Efficiency	To be specified by Bidder
15.	Facility to measure milk volume	To be specified by Bidder
16.	Type of Refrigerant	To be specified by Bidder
B.	**REFRIGERATION UNIT (Two independent unit one standby & one operational)**	To be specified by Bidder

17.	Condensing Unit Model for two numbers (DANFOSS/EMERSON/ EQUIVALENT)	To be specified by Bidder
18.	Model of Compressor for two numbers (DANFOSS/EMERSON/ EQUIVALENT)	To be specified by Bidder
19	Condenser Cooling	Air Cooled
20.	No. of Compressor	Two /Four
21.	Cooling capacity	Two/ Four
22.	Cooling capacity of compressor at 0 deg evaporating and +50deg condensing temp.(Kcal/Hr)	Two / Four

(B)

TECHNICAL SPECIFICATION OF BULK MILK COOLER **5KL BULK MILK COOLER**
(Vertical /Horizontal/ Cylindrical)
FUNCTIONAL REQUIRMENTS
(Bulk Milk Cooling Unit includes Bulk Cooler, DG set, Servo Stabilizer &Weighing Scale)

The Bulk cooling units shall be used to cool raw milk at the village level co-operative milk societies from the ambient temperature to 4 degree centigrade in conformity to specified ISI 5708 2A II standard.

The cooling tank shall be used for immediately cooling the milk after milking so as to conserve the quality of milk and check the growth of microorganism. It is intended for daily collection of milk. It is a hygienic container built to sanitary standards, which besides cooling also serves as buffer storage prior to transfer of milk for onwards transportation for further processing.

Two milking system has been configured such that volume of each milking is as under.

i)Milking in the morning (upto 10 AM) 60% ii)Milking in the evening 40%

The agitator provided in the cooling tank works intermittently and at a very gentle speed to avoid damage to the fat globules of milk . The agitator works only at temperatures below 20-25°C so as to conserve butter fat structure.

TECHNICAL DATA

The bulk cooling tanks shall confirm to ISO 5708 standard with categorization under Type 2AII.

Bulk Milk Cooler with Cover and Standard Accessories

Tank inner, outer, bottom laser evaporator jacket and to open able cover shall be fabricated from Stainless Steel AISI 304 material and welded with TIG process. The inner shell and all other product contact surface shall be polished up to minimum 150 grit.

The tank shall be complete with following.

- Top un-insulated cover with locking arrangement, inspection window, provision for agitator mounting an specially configured milk inlet. The top cover shall be hinged with a rugged arrangement comprising oil filled cylinders and mechanical springs to facilitate complete opening of tank cover for inspection and tank cleaning. A proper lifting handle in SS 304 construction is provided.
- Milk inlet complete with specially designed funnel terminating in no foam inlet arrangement with SS fine wire mesh.
- Outlets complete with specially designed lockable butter fly valve size 51 mm and terminating in proper en connection with blank union.

- The insulation of the tank shall be done by injection, in situ, of high-density(minimum 40 kg/.m³, CFC free and environmental friendly) polyurethane foam without having any imperfection and hygroscopicity. The efficiency of insulation is confirmed as per the requirement of ISO 5708 2A II (latest version) when the refrigeration unit is not working. -Ball feet specially made to prevent tempering, which could result in erratic measurement.
- Agitator in SS 304 construction complete with direct mount specially designed motor. The agitator is designed for producing uniform distribution of fat in milk.

1.2 Milk Filter

Each system shall be provided with one AISI 304 filters with SS fine mesh suitable to filter extraneous matter such as dust particles, hay flies, cow dung etc. The filter shall be on balance tank. The filter shall be designed and installed in such a way that it can frequently & easily be cleaned. This milk filter shall be provided with balance tank only.

1.3**Stainless Steel Sanitary Milk Pump for loading and unloading of milk :** A sanitary design mono block pump of 10 KLPH @ 10 MWC and driven by three phase motor in standard design for all the BMC Modules is included in the scope. The pump shall have SS vis carbon seal and will be provided with 38 mm inlet and 51mm outlet connections. The pump shall be shrouded with SS 304 cover and the impeller and product conduct parts in SS 304 material.

1.4 CIP Solution Holding Tank for BMC

The bulk milk storage tank and the piping system are designed for manual cleaning. As required one number AISI 304 plain un-insulated tank for capacity 500 ltrs. with cover shall be separately provided to prepare CIP solution for use white cleaning. The CIP solution shall be prepared in hot water manually. It shall be provided only for gravity feed systems. For pumped feed the balance tank shall serve as CIP Solution Preparation and Holding.

2.0 Refrigeration Unit

The refrigeration system is designed for operation on R 404 / any CFC free refrigerant as per current pollution Norms. For reciprocating/scroll compressors. The condensing units shall meet the latest safety standards. The System has to run on **SCROLL/RECIPROATING COMPRESSOR.**

The refrigeration system should be designed with twin condensing units. The total evaporator circuit is divided in two segments and each segment is connected to an independent condensing unit in case of twin condensing unit.

2.1 **Compressor** – Hermetically sealed reciprocating/Scroll compressor complete with drive motor. The motor is fully enclosed suitable for specified electrical supply. It is confirmed that the hermetic is provided with thermostat temperature sensor for protection against excess heating due to over loading and short – circuiting. 2.2 **Condenser**– Air-cooled, screen protected compact condenser unit comprising of finned condenser coils in several rows. Condenser fans of reputed make are fitted for the duty. The air circulation fans shall be induced draft type that will ensure blowing the air from inside to outside thereby making the system suitable for dusty and dry areas.

2.3 **Receiver** - A suitable size liquid receiver is included in the circuit of each condensing unit that would hold the refrigerant during maintenance and otherwise during the pump down cycle at the end of operation.

2.4 Thermostatic Expansion Valve – A thermostatic expansion valve shall be maximum operating pressure (MOP) type to ensure optimum quantity of refrigerant to the evaporator. It shall be ECTL make with suitably sized orifice if ECTL condensing units are considered and Danfoss Make if Danfoss condensing units are considered.

2.5 Evaporator– The Tenderer should ensure maximum efficiency of supplied system by using Laser welded evaporator having max. 5mm-9mm welding for max. cooling surface area with operating pressure of 30 bars and crash test pressure of 60 bars. Tenderer can be asked to show the sample of evaporator plate used. The evaporator shall be laser welded plate jacket put at the bottom plate of the inner tank. The total evaporator area is divided and separated in to two sections and each section shall be operated by one condensing unit. All connecting pipes terminating outside the tank are of stainless steel construction. The evaporator plate should be laser welded for all capacity bulk milk cooling tank.

2.6 **Refrigerant Pipes & Fittings and Controls** – Compressors are provided with isolation valves to ease the maintenance. Copper/SS tubing for refrigerant shall be properly laid to facilitate attending the leakage if occurred during operation without dismantling the total system. All pipes are properly clamped on fixed support and sponge insulated for protection.

3.0 ELECTRICAL CONTROL PANEL

Three control panels namely.

4) Main control panel with servo voltage stabilizer
5) Refrigeration control panel
6) Milk tank control panel are included in the scope.

Refrigeration control panel and milk tank control panels and the main control panel shall be conforming to following specifications:-

3.1 Main Control Panel with Servo Stabilizer

Main Control Panel

This panel should be suitable to tap the incoming State Electricity Board supply and feed the refrigeration unit, agitator motor and milk unloading pump (from balance tank) and dispatch pump. The DG set should be hooked up with this panel through a **'manual change-over-switch'** in order to operate the DG set in place of State Electricity Board supply and & when required. It should be provided with necessary phase indication lamps (LED type), contractors, MCBs, ammeter, Voltmeter, energymeter, frequency-meter, push buttons, DG set running hour meter etc. A battery charger to trickle charge the battery when the DG set is in operation (charge indications shall be displayed on the panel) should be provided.

3 phase Voltage stabilizer (servo type) and single phase preventor: The system should have Voltage Stabilizer conforming to following features and single phase preventer of suitable rating:

- Input Range Phase – 300 to 325 VAC (three phase power supply)
- Output self adjustable for a range of ± 5%
- Supply Frequency - 47 to 53 Hz
- Load & Line Regulation – 1%
- Output A.C. Voltage correction for wide input variations

- No output waveform distortion
- Fast correction of output voltage :20V/sec.
- Auto/manual operation facility
- Under –voltage and over voltage cut-out arrangement Voltmeter with facility to read input or output voltage
- High efficiency
- Compact and modular construction for ease in servicing
- M.C.B. on input circuit
- The ratings considered for BMC 63 KVA

3.3 <u>Refrigeration Control Panel :</u>

One number control panel in dust and vermin proof design in stainless steel enclosure suitable for mounting one the wall is included. The panel is pre-wired to terminal connections and shall comprise of the following:

- In coming MCB to receive power from main control panel (In stabilizer) Line voltage Controller to guard the compressor against voltage supply fluctuation.
- Sequential controller with timer delay arrangement to avoid surge on power supply.
- Selector switch for auto/manual mode of operation.
- One number Switchgear i.e. contractors and overload relay for the motor of compressor, condenser and agitator.

3.4 Milk Tank Control Panel

This panel shall be mounted on the bulk milk storage tank together with refrigeration control panel. It is a pre manufactured control panel in SS 304 construction in dust and vermin proof design comprising the following:

- Digital Temperature Indicator and display range (0 to 100 Deg.C)
- Selector facility for selecting operation of agitator and compressors on auto or manual arrangement.

3.5Cables & Electrical Switch Gears

The electrical switchgears as required are included in the control panels mentioned above. All power and control cabling between Main Control Panel. Refrigeration Panel and milk panel shall be flexible un-armoured, wherever laid through conduits. The conduits shall be heavy duty PVC type.

Earthing shall be standard copper plate earthing should be provided for DG set Body earthing of all panels and Neutral line confirming to IE rules. Supply of cables including earthing cable is within the scope of the bidder.

4.0 <u>Pumped Feed System</u>

<u>Inter connecting and Fittings :</u> One lot of SS pipes and fittings shall be supplied to interconnect the bulk cooler with balance tank, milk pump and tanker unloading hose. The piping shall include necessary butterfly valves, SS unions and support pipe holders. SS prop support shall be used to hold SS pipe holders for supporting from walls/floor. The SS 304 inline strainer shall be provided before the balance tank.

Balance Tank: A plain un-insulated construction balance tank cap 500 L for 5KL/10 KL 250 Ltr for 2KL complete with cover, SS 304 ball feet, and inlet and outlet connection is included to receive milk after weighment by direct tipping. A design of the balance tank shall be such that no milk should leave in the balance tank after reception.

Tanker loading Hose 38mm: A nylon braided hosepipe for unloading milk from the cooling tank shall be supplied. A length of 10 mtrs. is considered in the scope of supply.

4.1 .INSTALLATION,COMMISSIONING& TRAINING

Installation

The price quoted for installation and commissioning is considering that the entire lot of bulk coolers shall be supplied installed, commissioned and handed over for use within the period specified.

The necessary pre-requisites on building, water and mains supply shall be made available timely including the availability of technical/skilled operator to be trained.

Milk Unions shall make necessary arrangements at respective sites to store the dispatched material including its safe custody in case the site is not ready to take up installation. The payments against supply shall be made in the building as per pre-decided time schedule and the work shall be taken up only when the site is complete as per requirement and handed over for installation.

The scope of installation shall be within specified battery limits and exclusions.

4.2 Commissioning :

The commissioning of the bulk coolers along with the performance trial shall be done at each bulk-cooling site. In case milk is not available in adequate quantity the performance test i.e. capacity trial shall be conducted on water with the results deemed to have concluded the performance trial.

A period of two/three days at each collection center is estimated and included for performance trial and commissioning to have over the installation.

4.3 Training

Tenderer shall arrange for training of the team of DCS staff for efficient operation and maintenance of the complete system. **8.4 Tool Box and Operation Manual**

A GI Sheet toolbox containing one set of all necessary tools required for regular maintenance of the unit shall be supplied along with the BMC.

Two set of operation & maintenance manual in Hindi and English containing complete details of starting, putting off, critical checks and day-to-day maintenance of the complete system shall be supplied. The manual shall also have the required electrical circuit diagrams.

Annexure -II

DIESEL GENARATOR

TECHNICAL SPECIFICATION OF D.G.SET

(Preferably : Kirloskar/ Mahindra/ Eicher/ Ashok Leyland

Sl no.	Description	Specifications Required
1.	General Operating and Design conditions	The DG set shall be of capacity: . 25 KVA Three Phase, air or water cooled for 5 KL BMC . 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. 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.
2.	Confirmation to regulatory norms for environment and Approval from Local authorities	• 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 compliant with new **CPCB IV** norms applicable from June , 2024. • The exhaust pipe with exhaust muffler with insertion loss of minimum 25 dB (A) is connected to the exhaust manifold preferably 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. • Supplier to obtain the approval of Local authorities in case it is required by the rules.
3.	Diesel Engine	• 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 up to 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, • 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 lub oil pressure, low water level in radiator auxiliary failure, air cleaner choke indicator. • Steel Diesel Storage barrel of 200 lit capacity with manual pump
4.	Engine Instrument Panel (Mechanical and/or electronic gauges)	Consist of Ignition key, Starting push button, Lubricating oil pressure gauge, Temperature gauge for cooling water, Temperature gauge for lubricating oil, RPM meter (Analog type), Battery charging ammeter
6.	Alternator	The engine should be closely / flexible coupled to suitable selfexcited, 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 IS13364 (Part 1) 1992 up to 20 KVA, IS 13364 (part II) 1992 or IS 4722 of 1992 above 20 KVA.
5	Control Panel	The diesel generating set to have suitable control panel duly prewired 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 kA. One set of indicating lamps and control fuses.

Signature:

Seal:

Annexure - III

THECHNICAL SPECIFICATIONS FOR STABILIZERS

Sl no.	Particulars	Technical Specifications
1.	Servo Voltage Stabilizer	Required for stabilizing the power supply to BMC from grid or DG set. 25 KVA - 3 Phase for 5 KL BMC
2.	Voltage range	90 to 260 V for 1phase and 260 to 500 for 3 phase BMC
	Voltage Out Put	230 V +/- 1% for Single Phase 415 V +/- 1% for 3 Phase
	Voltage correction	35V/Sec
3.	Rating	15 KVA- 1 or 3 Phase 25 KVA - 3 Phase
4.	MOC, thickness & type of structure	MS powder coated , 1.6 mm & pipe structure
5.	Accessories for 1 phase stabilizer	63A MCCB for incoming , 63 A phase selector, changeover and bypass switch, LED lamps, Servo controlled correction transformer, Digital V,I,F indicator for input & output, 63 A 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 63 A-2nos, DP 32 A-1 no, Dp 16A-1 no), Metallic pump socket, Servo Motor.
6.	Accessories for 3 Phase stabilizer	40 A 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 32 A-1no, TPN 16 A-1no), Metallic pump socket, Servo Motor.
7.	Operating features	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-105 v/s, Efficiency-99.5%.

Annexure IV

SPECIFICATION OF WEIGHING BALANCE

Platform type Electronic Weighing Machine Standard

Model DB-1 H with SS Plat form size 500 MM X 500 MM

Display digit - 5 Nos. Power source - AC 220V/50HZ

Capacity : 200 Kg. X 20 Gms.

- Soft Touch tact switch
- Easy to road VFD Display
- Unique design steel frame with metallic grey powder coating
- Solid Back Rail
- single piece frame work system
- Hold function
- *Operating Temp **(10**°C to 40 °C)*

N.B: Stamping & verification of Weighing Machine by the weights & measure Deptt. shall get done by the Machine supplier at their own cost.

5.0 CAN DRIP SAVER

5.1 Functional requirement.

5.1.1 General description- The drip saver would be used to collect the milk drops remaining on the sides of the milk cans after they are emptied.

5.2 DESIGN REQUIREMENTS-

5.2.1 The unit should be provided with a rack of 2 meter length fabricated out off 51mm GI pipes with an arrangement to move the empty milk cans in an inverted position manually.

5.2.2 Suitable can guides should be provided to keep the inverted empty milk cans into slightly slanting position.

5.2.3 The empty can carrying bar (which comes in contact with milk) should be made of S.S.

5.2.4 A S.S. drip collecting pan with 25 mm dia outlet should be provided under the rack covering Its entire length and width.

5.2.5 The whole unit should be of self-supporting design and should be suitable for fixing on a formulation.

5.2.6 The height of the milk outlet should not be less than 625mm from the finished floor level.

5.2.7 The drip saver should be given generous slops towards the milk outlet to ensure complete training of collected milk from the drip pan.

5.2.8 All S.S. parts should be polished and finished to 150 grits. All M.S. surfaces should be given acoat of epoxy primer followed by two coats of paint of deep blue shade.

6.0 CAN SCRUBBER

FUNCTIONAL REQUIREMENT

6.1 GENERAL DESCRIPTION

The machine is required to mechanically, scrub the inside (including bottom) and outside surface of standard 40 liters milk can (max dia 352 mm, height 595 mm and neck dia 200 mm). The cans are to manually loaded, un-loaded.

6.2 DESIGN REQUIREMENT

The generally accepted design should have a horizontal immersion bath with the two electrically driven brushes mounted in the horizontal axis, however other designs would also be considered.

6.2.1 The bath should be of a robust construction fabricated out of 2 mm thick SS AISI 304 with a rigidly formed top edge with an overflow connection and a valve discharge drain. The overflow pipe should extend up to floor.

6.2.2 The brush drive motor and transmission assembly should be securely mounted at one end of the bath. The brush dive shaft, which should rotate in the same direction should extend through the end wall and be fitted with a proper sealing arrangement to prevent leakage from the bat. Bearing must be adequately protected from the ingress of water and have adequate greasing points. The whole drive assembly should have enclosed in a waterproof cover.

6.2.3 The high quality nylon brushes which are within the scope of the supply should be suitable for securing rigidly to the extended drive shaft.

6.2.4 One suitable nylon brush should also be provided to clean the outside of the can bottom.

6.2.5 Two numbers rollers with proper bearing should be provided on either side of the can and mounted firmly on the inside of trough body. These rollers will help in smooth rotational motion of the can.

6.2.6. Frame- Except for specialization components the machine would be constructed in milk steel and mounted on a rigid frame. The scrubber should be provided with suitable MS legs having SS ball foot with 50 mm vertical adjustment.

	Description	5000 KL **(3 Phase**))
A.	**MILK TANK**	
1.	Capacity – RATED/GROSS	Rated Gross – 2000/5000 L
2.	Make and model	To be specified by Bidder
3.	Material used for construction (SS304/3016)	To be specified by Bidder
4.	Overall dimensions (without CDU) (LXWXH)	To be specified by Bidder
5.	Weight (with CDU)	To be specified by Bidder
6.	No. and RPM of agitators	To be specified by Bidder
7.	CIP facility	To be specified by Bidder
8.	Thickness of Inner shell	To be specified by Bidder
9.	Thickness of Outer shell	To be specified by Bidder
10**.**	**INSULATION:**	
11.	Type	To be specified by Bidder
12.	Thickness (mm)	To be specified by Bidder
13.	Density	To be specified by Bidder
14.	Efficiency	To be specified by Bidder
15.	Facility to measure milk volume	To be specified by Bidder
16.	Type of Refrigerant	To be specified by Bidder
B.	**REFRIGERATION UNIT (Two independent unit one standby & one operational)**	To be specified by Bidder
17.	Condensing Unit Model for two numbers (DANFOSS/EMERSON/ EQUIVALENT)	To be specified by Bidder
18.	Model of Compressor for two numbers (DANFOSS/EMERSON/ EQUIVALENT)	To be specified by Bidder
19	Condenser Cooling	Air Cooled
20.	No. of Compressor	Two /Four
21.	Cooling capacity	Two/ Four
22.	Cooling capacity of compressor at 0 deg evaporating and +50deg condensing temp.(Kcal/Hr)	Two / Four

(C)

TECHNICAL SPECIFICATION OF BULK MILK COOLER **10KL BULK MILK COOLER**

BULK MILK COOLER (Horizontal/ Cylindrical)

FUNCTIONAL REQUIRMENTS

(Bulk Milk Cooling Unit includes Bulk Cooler, DG set, Servo Stabilizer &Weighing Scale)

TECHNICAL SPECIFICATION OF BULK MILK COOLER 10000 LTR

BULK MILK COOLER (Horizontal / Cylindrical

CAPACITY – 10,000 LTRS.

QUANTITY – 01 (ONE NOS).

FUNCTIONAL REQUIRMENTS

The Bulk cooling units shall be used to cool raw milk at the village level co-operative milk societies from the ambient temperature to 4 degree centigrade in conformity to specified ISI 5708 2A II standard.

The cooling tank shall be used for immediately cooling the milk after milking so as to conserve the quality of milk and check the growth of microorganism. It is intended for daily collection of milk. It is a hygienic container built to sanitary standards, which besides cooling also serves as buffer storage prior to transfer of milk for onwards transportation for further processing.

Two milking system has been configured such that volume of each milking is as under.

i) Milking in the morning (upto 10 AM) 60%

ii) Milking in the evening 40%

The agitator provided in the cooling tank works intermittently and at a very gentle speed to avoid damage to the fat globules of milk . The agitator works only at temperatures below 20-25°C so as to conserve butter fat structure.

TECHNICAL DATA

The bulk cooling tanks shall confirm to ISO 5708 standard with categorization under Type 2AII.

Bulk Milk Cooler with Cover and Standard Accessories

- Tank inner, outer, bottom laser evaporator jacket and to open able cover shall be fabricated from Stainless Steel AISI 304 material and welded with TIG process. The inner shell and all other product contact surface shall be polished upto minimum 150 grit.

The tank shall be complete with following.

- Top un-insulated cover with locking arrangement, inspection window, provision for agitator mounting an specially configured milk inlet. The top cover shall be hinged with a rugged arrangement comprising oil filled cylinders and mechanical springs to facilitate complete opening of tank cover for inspection and tank cleaning. A proper lifting handle in SS 304 construction is provided.
- Milk inlet complete with specially designed funnel terminating in no foam inlet arrangement with SS fine wire mesh.
- Outlets complete with specially designed lockable butter fly valve size 51 mm and terminating in proper en connection with blank union.
- The insulation of the tank shall be done by injection, in situ, of high-density(minimum 40 kg/.m³, CFC free and environmental friendly) polyurethane foam without having any imperfection and hygroscopicity. The efficiency of insulation is confirmed as per the requirement of ISO 5708 2A II (latest version) when the refrigeration unit is not working.
- Ball feet specially made to prevent tempering, which could result in erratic measurement.
- Agitator in SS 304 construction complete with direct mount specially designed motor. The agitator is designed for producing uniform distribution of fat in milk.

1.2 <u>Milk Filter</u>

Each system shall be provided with one AISI 304 filters with SS fine mesh suitable to filter extraneous matter such as dust particles, hay flies, cow dung etc. The filter shall be on balance tank. The filter shall be designed and installed in such a way that it can frequently & easily be cleaned. This milk filter shall be provided with balance tank only.

1.3 **Stainless Steel Sanitary Milk Pump for loading and unloading of milk :** A sanitary design mono block pump of 10 KLPH @ 10 MWC and driven by three phase motor in standard design for all the BMC Modules is included in the scope. The pump shall have SS vis carbon seal and will be provided with 38 mm inlet and 51mm outlet connections. The pump shall be shrouded with SS 304 cover and the impeller and product conduct parts in SS 304 material.

1.4 CIP Solution Holding Tank for BMC

The bulk milk storage tank and the piping system are designed for manual cleaning. As required one number AISI 304 plain un-insulated tank for capacity 500 ltrs. with cover shall be separately provided to prepare CIP solution for use white cleaning. The CIP solution shall be prepared in hot water manually. It shall be provided only for gravity feed systems. For pumped feed the balance tank shall serve as CIP Solution Preparation and Holding.

2.0 Refrigeration Unit

The refrigeration system is designed for operation on R404 / any CFC Free Refrigerant as per Current pollution Norms refrigerant for reciprocating/scroll compressors. The condensing units shall meet the latest safety standards. The System has to run on **SCROLL/RECIPROATING COMPRESSOR.**

The refrigeration system should be designed with twin condensing units. The total evaporator circuit is divided in two segments and each segment is connected to an independent condensing unit in case of twin condensing unit.

2.1 **Compressor** – Hermetically sealed reciprocating/Scroll compressor complete with drive motor. The motor is fully enclosed suitable for specified electrical supply. It is confirmed that the hermetic is provided with thermister temperature sensor for protection against excess heating due to over loading and short – circuiting.

2.2 **Condenser** – Air-cooled, screen protected compact condenser unit comprising of finned condenser coils in several rows. Condenser fans of reputed make are fitted for the duty. The air circulation fans shall be induced draft type that will ensure blowing the air from inside to outside thereby making the system suitable for dusty and dry areas.

2.3 **Receiver** - A suitable size liquid receiver is included in the circuit of each condensing unit that would hold the refrigerant during maintenance and otherwise during the pump down cycle at the end of operation.

2.4 Thermostatic Expansion Valve – A thermostatic expansion valve shall be maximum operating pressure (MOP) type to ensure optimum quantity of refrigerant to the evaporator. It shall be ECTL make with suitably sized orifice if ECTL condensing units are considered and Danfoss Make if Danfoss condensing units are considered.

2.5 Evaporator – The tenderer should ensure maximum efficiency of supplied system by using Laser welded evaporator having max. 5mm-9mm welding for max. cooling surface area with operating pressure of 30 bars and crash test pressure of 60 bars. Tenderer can be asked to show the sample of evaporator plate used. The evaporator shall be laser welded plate jacket put at the bottom plate of the inner tank. The total evaporator area is divided and separated in to two sections and each section shall be operated by one condensing unit. All connecting pipes terminating outside the tank are of stainless steel construction. The evaporator plate should be laser welded for all capacity bulk milk cooling tank.

2.6 **Refrigerant Pipes & Fittings and Controls** – Compressors are provided with isolation valves to ease the maintenance. Copper/SS tubing for refrigerant shall be properly laid to facilitate attending the leakage if occurred during operation without dismantling the total system. All pipes are properly clamped on fixed support and sponge insulated for protection.

3.0 ELECTRICAL CONTROL PANEL

Three control panels namely.

1) Main control panel with servo voltage stabilizer
2) Refrigeration control panel
3) Milk tank control panel are included in the scope.
   Refrigeration control panel and milk tank control panels and the main control panel shall be conforming to following specifications: -

3.1 Main Control Panel with Servo Stabilizer

Main Control Panel

This panel should be suitable to tap the incoming State Electricity Board supply and feed the refrigeration unit, agitator motor and milk unloading pump (from balance tank) and dispatch pump. The DG set should be hooked up with this panel through a **'manual change-over-switch'** in order to operate the DG set in place of State Electricity Board supply and & when required. It should be provided with necessary phase indication lamps (LED type), contractors, MCBs, ammeter, Voltmeter, energy-meter, frequency-meter, push buttons, DG set running hour meter etc. A battery charger to trickle charge the battery when the DG set is in operation (charge indications shall be displayed on the panel) should be provided.

3 phase Voltage stabilizer (servo type) and single phase preventor: The system should have Voltage Stabilizer conforming to following features and single phase preventer of suitable rating:

- Input Range Phase – 300 to 325 VAC (three phase power supply)
- Output self adjustable for a range of ± 5%
- Supply Frequency - 47 to 53 Hz
- Load & Line Regulation – 1%
- Output A.C. Voltage correction for wide input variations
- No output waveform distortion
- Fast correction of output voltage :20V/sec.
- Auto/manual operation facility
- Under –voltage and over voltage cut-out arrangement
- Voltmeter with facility to read input or output voltage
- High efficiency
- Compact and modular construction for ease in servicing
- M.C.B. on input circuit
- The ratings considered for BMC 63 KVA

3.3 Refrigeration Control Panel :

One number control panel in dust and vermin proof design in stainless steel enclosure suitable for mounting one the wall is included. The panel is pre-wired to terminal connections and shall comprise of the following:

- In coming MCB to receive power from main control panel (In stabilizer)
- Line voltage Controller to guard the compressor against voltage supply fluctuation.
- Sequential controller with timer delay arrangement to avoid surge on power supply.
- Selector switch for auto/manual mode of operation.
- One number Switchgear i.e. contractors and overload relay for the motor of compressor, condenser and agitator.

3.4 Milk Tank Control Panel

This panel shall be mounted on the bulk milk storage tank together with refrigeration control panel. It is a pre manufactured control panel in SS 304 construction in dust and vermin proof design comprising the following:

- Digital Temperature Indicator and display range (0 to 100 Deg.C)
- Selector facility for selecting operation of agitator and compressors on auto or manual arrangement.

3.5 Cables & Electrical Switch Gears

The electrical switchgears as required are included in the control panels mentioned above. All power and control cabling between Main Control Panel. Refrigeration Panel and milk panel shall be flexible un-armoured, wherever laid through conduits. The conduits shall be heavy duty PVC type.

Earthing shall be standard copper plate earthing should be provided for DG set Body earthing of all panels and Neutral line confirming to IE rules. Supply of cables including earthing cable is within the scope of the bidder.

4.0 Pumped Feed System

Inter connecting and Fittings : One lot of SS pipes and fittings shall be supplied to interconnect the bulk cooler with balance tank, milk pump and tanker unloading hose. The piping shall include necessary butterfly

valves, SS unions and support pipe holders. SS prop support shall be used to hold SS pipe holders for supporting from walls/floor. The SS 304 inline strainer shall be provided before the balance tank.

Balance Tank: A plain un-insulated construction balance tank cap 500 L for complete with cover, SS ball feet, and inlet and outlet connection is included to receive milk after weighment by direct tipping. A design of the balance tank shall be such that no milk should leave in the balance tank after reception.

Tanker loading Hose 38mm: A nylon braided hosepipe for unloading milk from the cooling tank shall be supplied. A length of 10 mtrs. is considered in the scope of supply.

DG SET WITH ACCESSORIES

5.0Diesel Generating Set with Alternator and Engine as per CPCB IV Norms

MAKE : MAHINDRA/EICHER/ASHOK LEYLADN/KIRLOSKAR

Air/ Water cooled diesel generating set (DG Set) 63 KVA with three phase system shall be supplied mounted on common base frame duly supported on anti vibration mountings. The DG set shall be of proven make confirming to the following conditions.

a) The DG set shall be suitable for power factor 0.80 lag and alternator efficiency shall be maximum 85%.
b) The DG set shall be suitable o take care of the electrical load pertaining to the condensing units, milk tank agitator and milk dispatch pump mounted on the tanker. The DG set shall also be sized considering the loads of milk pump in case of pump feed systems.
c) An allowance of 20% additional load and ambient condition of 50 Degree dry bulb temperature is considered in design.
d) The DG set shall be suitable for operating 20% over load for a continuous period of one hour after every twelve hours of continuous operation without overheating.
e) Statutory approval, installation o KWH metering unit & sealing is within the scope of the bidder.

Each set shall have the following accessories :

a. Starter motor mounted sideways.
b. Key start. The key start station shall be mounted on a panel alongwith oil pressure gauge.
c. Suitable coupling shall be provided.
d. Fuel tank of 200 capacities shall be provided with each set.
e. Residential silencer shall be provided with each set.
f. A Frame shall be provided for mounting the Battery.
g. The emission limits for diesel engines shall be in conformity with the latest Gazette OF India notification for NO2,HC, CO,PM, sound and smoke limit. A certificate to this effect from Competent Authority shall be submitted with each set. Each DG set shall be CPCB approved.

Barrel and Hand Pump

Single use barrel of capacity 200 ltrs. and hand pump for Diesel is included.

We have also included Battery and Battery Charger under main control & electrical Starting System in the system.

Battery & Battery Charger: Included in main control Panel.

Electrical starting system is included. Charge over switch of inline capacity cables metering unit and local statutory approval is within the scope of the bidder.

6.0 WEIGHING MACHINES SPECIFICATION

MAKE : - Reputed Make

Capacity: - 200kg, Accuracy: - 20 g

S.S Platform size 600x600mm

Battery backup: - 24 hours

Display:- Dual VFD display 6 digit, 7 segment

Conversion:- K.G to liter

Capacity of load cell: - 500 kg for over load protection

Rs 232 provision: - Rs 232 data interface serial 6port for P.C & printer

Operating temperature:- 10 ² to 40² C .

Mouse protection:- Load cell & load cell cable are covered with flexible Metal wired

for mouse.

Power :- AC 220V/ 50 HZ

It should have access to computer/ data Printing unit

7.0 VOLTAGE STABILIZER (SERVO TYPE) THREE PHASE PREVENTOR

63 KVA SERVO STABILIZER THREE PHASE

Make : Reputed Make

Input range - 300 Volt.
Out put range - 440 V + 1% (three Phase)
Voltage correction - 35V / SEC
The stabilizer shall include Overload & short circuit protection with Voltameter, Ammeter, Indicator, selector switch Alaram & control etc.
Efficiency -95%

8.0 INSTALLATION,COMMISSIONING & TRAINING

8.1 Installation

The price quoted for installation and commissioning is considering that the entire lot of bulk coolers shall be supplied installed, commissioned and handed over for use within the period specified.

The necessary pre-requisites on building, water and mains supply shall be made available timely including the availability of technical/skilled operator to be trained.

Milk Unions shall make necessary arrangements at respective sites to store the dispatched material including its safe custody in case the site is not ready to take up installation. The payments against supply shall be made in the building as per pre-decided time schedule and the work shall be taken up only when the site is complete as per requirement and handed over for installation.

The scope of installation shall be within specified battery limits and exclusions.

8.2 Commissioning :

The commissioning of the bulk coolers along with the performance trial shall be done at each bulk-cooling site. In case milk is not available in adequate quantity the performance test i.e. capacity trial shall be conducted on water with the results deemed to have concluded the performance trial.
A period of two/three days at each collection center is estimated and included for performance trial and commissioning to have over the installation.

8.3 Training

Tenderer shall arrange for training of the team of DCS staff for efficient operation and maintenance of the complete system.

8.4 Tool Box and Operation Manual

A GI Sheet toolbox containing one set of all necessary tools required for regular maintenance of the unit shall be supplied along with the BMC.

9.0 CAN DRIP SAVER

9 .1 Functional requirements.

9.1.1 General description- The drip saver would be used to collect the milk drops remaining on the sides of the milk cans after they are emptied.

9.2 DESIGN REQUIREMENTS-

9.2.1 The unit should be provided with a rack of 2 meter length fabricated out off 51mm GI pipes with an arrangement to move the empty milk cans in an inverted position manually.

9.2.2 Suitable can guides should be provided to keep the inverted empty milk cans into slightly slanting position.

9.2.3 The empty can carrying bar (which comes in contact with milk) should be made of S.S.

9.2.4 A S.S. drip collecting pan with 25 mm dia outlet should be provided under the rack covering ts entire length and width.

9.2.5 The whole unit should be of self-supporting design and should be suitable for fixing on a formulation.

9.2.6 The height of the milk outlet should not be less than 625mm from the finished floor level.

9.2.7 The drip saver should be given generous slops towards the milk outlet to ensure complete training of collected milk from the drip pan.

9.2.8 All S.S. parts should be polished and finished to 150 grits. All M.S. surfaces should be given A coat of epoxy primer followed by two coats of paint of deep blue shade.

10.0 CAN SCRUBBER

FUNCTIONAL REQUIREMENT

10.1 GENERAL DESCRIPTION

The machine is required to mechanically, scrub the inside (including bottom) and outside surface of standard 40 liters milk can (max dia 352 mm, height 595 mm and neck dia 200 mm). The cans are to manually loaded, un-loaded.

10.2 DESIGN REQUIREMENT

The generally accepted design should have a horizontal immersion bath with the two electrically driven brushes mounted in the horizontal axis, however other designs would also be considered.

10.2.1 The bath should be of a robust construction fabricated out of 2 mm thick SS AISI 304 with a rigidly formed top edge with an overflow connection and a valve discharge drain. The overflow pipe should extend up to floor.

10.2.2 The brush drive motor and transmission assembly should be securely mounted at one end of the bath. The brush dive shaft, which should rotate in the same direction should extend through the end wall and be fitted with a proper sealing arrangement to prevent leakage from the bat. Bearing must be adequately protected from the ingress of water and have adequate greasing points. The whole drive assembly should have enclosed in a waterproof cover.

10.2.3 The high quality nylon brushes which are within the scope of the supply should be suitable for securing rigidly to the extended drive shaft.

10.2.3 One suitable nylon brush should also be provided to clean the outside of the can bottom.

10.2.5 Two numbers rollers with proper bearing should be provided on either side of the can and mounted firmly on the inside of trough body. These rollers will help in smooth rotational motion of the can.

10.2.6. Frame- Except for specialization components the machine would be constructed in milk steel and mounted on a rigid frame. The scrubber should be provided with suitable MS legs having SS ball foot with 50 mm vertical adjustment.

Two set of operation & maintenance manual in Hindi and English containing complete details of starting, putting off, critical checks and day-to-day maintenance of the complete system shall be supplied. The manual shall also have the required electrical circuit diagrams.

TECHNICAL DATA SHEET FOR BULK COOLING UNIT.

Sl no.	Description	10000 Litter per Day (THREE PHASE)
A.	**MILK TANK**	
1.	Capacity – RATED/GROSS	Rated 10000/ Gross – 11000 L
2.	Make and model	To be specified by Bidder
3.	Material used for construction (SS304/3016)	To be specified by Bidder
4.	Overall dimensions (without CDU) (LXWXH)	To be specified by Bidder
5.	Weight (with CDU)	To be specified by Bidder
6.	No. and RPM of agitators	To be specified by Bidder
7.	CIP facility	To be specified by Bidder
8.	Thickness of Inner shell	To be specified by Bidder
9.	Thickness of Outer shell	To be specified by Bidder
10.	**INSULATION:**	
11.	Type	To be specified by Bidder
12.	Thickness (mm)	To be specified by Bidder
13.	Density	To be specified by Bidder
14.	Efficiency	To be specified by Bidder
15.	Facility to measure milk volume	To be specified by Bidder
16.	Type of Refrigerant	To be specified by Bidder
B.	**REFRIGERATION UNIT (Two independent unit one standby & one operational)**	To be specified by Bidder
17.	Condensing Unit Model for two numbers (DANFOSS/EMERSON/ EQUIVALENT)	To be specified by Bidder
18.	Model of Compressor for two numbers (DANFOSS/EMERSON/ EQUIVALENT)	To be specified by Bidder
19	Condenser Cooling	Air Cooled
20.	No. of Compressor	Two / Four
21.	Cooling capacity	Two/ Four

COMMERCIAL BID FORMAT ONLY FOR REFERENCE

Item Wise BoQ

Tender Inviting Authority: OMFED

Name of Work: Supply, Installation, Commissioning & Testing of Bulk Milk Cooler at different Milk Union Levels in the state of Odisha.

Contract No: 7684818686

Name of the Bidder/ Bidding Firm / Company :

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	BASIC RATE (F.O.R BASIS) including installation & Commissioning In Figures To be entered by the Bidder in Rs. P	GST (If applicable in Percentage)	GST Amount in Rs. P	Manufacture Name	TOTAL AMOUNT excluding taxes in Rs. P	TOTAL AMOUNT including taxes Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	6	7	8	9	10	11	12
1	**2KL BMC (Combo Unit)**										
2	BMC- 2 KL (1/3phase) , as per specification mention in the DTCN.	I2	20.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
3	D.G.- 15 KVA (1/3phase).as per	i3	20.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only

	specification mention in the DTCN.										
4	Stabiliser-15 KVA (1/3 phase), as per specification mention in the DTCN.	i4	20.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
5	Weighing Balance .as per specification mention in the DTCN.	i5	20.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
6	**5KL BMC (Combo Unit)**										
7	BMC- 5 KL , as per specification mention in the DTCN.	I8	10.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
8	D.G.- 25 KVA (3phase). as per specification mention in the DTCN.	I9	10.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
9	Stabiliser-25 KVA (3 phase), as per specification mention in the DTCN.	I10	10.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only

10	Weighing Balance .as per specification mention in the DTCN.	I11	10.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
11	Can Scrubber **(As listed in tender document)**, as per specification mention in the DTCN.	I12	10.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
12	Can drip Saver**,** as per specification mention in the DTCN.	I13	10.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
13	**10KL BMC (Combo Unit)**										
14	BMC- 10 KL , as per specification mention in the DTCN.	I15	1.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
15	D.G.- 63 (3phase). as per specification mention in the DTCN.	I16	1.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only

16	Stabiliser-63 KVA (3 phase), as per specification mention in the DTCN.	I17	1.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
17	Weighing Balance as per specification mention in the DTCN.	I18	1.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
18	Can Scrubber (As listed in tender document), as per specification mention in the DTCN.	I19	1.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only
19	Can drip Saver, as per specification mention in the DTCN.	I20	1.00	Nos			**0.00**		**0.000**	**0.000**	INR Zero Only

Bidder shall be filled the Commercial bid through E- procurement site.