

E-Tender Document

Purchase of Bulk Milk Cooler

E-Tender Document: JDCMPUL/2023-24/5/Purchase/Bulk Milk Cooler (BMC)



**Shree Jamnagar District Co-Operative
Milk Producers' Union Ltd.**

Halar Dudh Dhara Dairy, 43/B Hapa
Industrial Area -361120 Phone: 8107259960

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Contents

Contents	1
1. General Information	2
1.1 Notice Inviting Tender	2
1.2 Eligibility Criteria	3
1.3 Downloading of Tender Document.....	4
1.4 Submission of the Bid	4
1.5 Bid Security	4
1.6 Rights Reserved By Halardudhdhara, Jamnagar	5
1.7 Validity	5
1. Check List	6
2. General Terms and Conditions.....	7
3.1 Standards	7
3.2 Patent Rights.....	7
3.3 Inspection and Tests	7
3.4 Assignment	7
3.5 Review and Coordination.....	8
3.6 Approval & Insurance	8
3.07 Jurisdiction.....	8
3.08 Price Basis	8
3.09 Bid Evaluation	8
3.10 Delivery and Documents	9
3.11 Variation in Order Quantity.....	9
3.12 Payment Terms.....	9
3.13 Penalty clause.....	9
3. Technical Specifications	10
4. Specific Terms Contract	15
4.1 Bulk Milk Storage Tank.....	
4.2 Stainless Steel Sanitary Milk Pump for loading and unloading of milk.....	18
4.3 Refrigeration Unit.....	19
4.4 Compressor.....	19
4.5 Condenser.....	19
4.6 Receiver.....	19
4.7 Thermostatic Expansion Valve.....	19



4.8Evaporator.....	19
4.9 Refrigerant Pipes & Fittings and Controls.....	19
5.0 ELECTRICAL CONTROL PANEL.....	20
5.1 Main Control Panel with Servo Stabilizer.....	20
5.2 Refrigeration Control Panel.....	21
5.3 Milk Tank Control Panel.....	21
5.4 Cables & Electrical Switch Gears.....	21
5.5 Pumped Feed System (For all capacity)	21
6.0 DG Set 3 Phases with Accessories.....	22
6.1 INSTALLATION, COMMISSIONING & TRAINING.....	23
7.0 Tool Box and Operation Manual.....	23
7.1.0 PARTICULAR.....	24
7.2.0 QUANTITY:.....	24
7.3.0 RATES.....	24
7.4.0 DELIVERY:	24
7.5.0 QUALITY.....	25
7.6.0 PAYMENT:.....	25
7.7.0 OTHER TERMS	25
8. Tender Price Bid.....	26



1. General Information

1.1 Notice Inviting Tender

Tender Notice No.	JDCMPUL/2023-24/5/Purchase/Bulk Milk Cooler (BMC)
Bid Documents Download Start	10-10-2023
Bid Documents Download End	20-10-2023
Last Date & Time for ONLINE submission of commercial bids	25-10-2023
Last Date & Time for sending tender fee, EMD and other documents (in hard copy) as mentioned in the tender document	25-10-2023
Bid Validity Period	3 months
Bid Document Fee:	1000
Bid Security/EMD (INR):	15000
Bid Document Fee/EMD Payable To:	Shree Jamnagar Jilla Sahkari Dudh Utpadak Sangh Ltd, Jamnagar
Name of Company	Jamnagar District Co-operative Milk Producers' Union Ltd,
Name of Tender	Purchase of Bulk Milk Cooler (BMC)
Estimated Cost of Tender	1200000
Online Bidding Details	www.nprocure.com



Terms and Conditions	<p>This is a two-stage tender i.e., first, technical data submitted by bidders will get analyzed at our end. Then commercial bid of only technically qualified bidders will be considered for second stage of commercial evaluation.</p> <p>Bidders have to abide by all terms and conditions and specifications of items mentioned in tender document.</p>
Officer Inviting Bids:	General Manager
Bid Opening Authority:	General Manager
Address:	General Manager Hapa Industrial Area, Plot no. 43/B, Near Ambika weighbridge, Opp. M. M. Glass, Jamnagar -361120
Contact Details:	8107259960
Contact Person (Technical)	Sanga Bhai Saniya (Quality Assurance Officer) Mob.7573006267 e-mail id- SanjaySaniya.jdcmpu@gmail.com Nikunj Shiyani (Head -Project) – Mob. -7573006266 e-mailid- NikunjShiyani.jdcmpu@gmail.com



1.2 Qualification and Evaluation Criteria

1. In the technical bid, the bidder shall furnish documents establishing the bidder's eligibility to bid and its qualifications to perform the contract if its bid is accepted. The bidder should also give information in the formats given in bidding forms of the bid document.
2. The bidder must be an experienced manufacturer or authorized by him for supply in the subject goods. If manufacturer, scanned copy of manufacturing license/ factory license/ Udyog Aadhar etc. be scanned and uploaded. If not a manufacturer, the manufacturer's authorization form duly signed with seal by the manufacturer on the manufacturing firm's letterhead along with the copy of manufacturing license and /Udyog Aadhar of the respective manufacture are to be scanned and uploaded.
3. The copy of applicable licenses and certificate like ISO, BIS Certificate, Industrial safety certificate and another like certificate etc. The certificates should be valid on the last date of submission of bid and should remain valid during the currency of contract period if work is awarded.
4. Technical team of Halar Dudh Dhara Dairy may inspect the required infrastructure available with the bidder before finalization of the tender.
5. The eligible bidder must have average turnover not less than 35 Crores in preceding 3 financial years **for BMC & allied accessories business (2020-21, 2021-22, 2022-23)**. The statement of annual turnover from Chartered Accountant with sign, seal and registration number should be scanned and uploaded.
6. The bidder should be in business of the BMCs tendered for a minimum period of 10 years of bid opening in the same name and style. 2 PO copies from any Cooperative Dairy in India should be enclosed which should be minimum 10 years old as a proof.
7. The bidder should have already supplied more than 300 BMC of similar nature to other cooperative milk federation/unions in India in last 3 years (2020-21, 2021-22 & 2022-23). The List of clients, along with PO copies, BMC, capacity and quantity supplied, should be uploaded in the e-tender.
8. Bidder should have minimum 250 BMC AMC contract running presently from cooperative unions in India. Documentary proof should be attached by the bidder for the same.
9. Bidder should be ISO 9001 company and documentary evidence of the same should be uploaded.
10. The bidder should submit statement of deviations and exceptions to the provisions of the technical specifications demonstrating the goods and services substantial responsiveness to the specifications in the form provided.
11. Pursuant to statement of technical deviation given, the bidder shall note that standards for workmanship, material and equipment, and references to brand names of catalogue numbers designated by the purchaser in its technical specifications are intended to be descriptive only and not restrictive. The bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the purchaser's satisfaction that the substitutions are substantially equivalent or superior to



those designations' technical specifications.

12. For the purpose of further establishing the bidder's ability to execute this particular contract if required, bidders shall submit following documents, upon being asked:
 - a. A detailed description of the goods essential technical and performance characteristics.
 - b. A list giving full particulars, including available sources and current prices of all spare parts, special tools etc. Necessary for the proper and continuing functioning of the goods for a period of two years, following commencement of the goods use by the Purchaser.
13. The Bidder must have PAN number and GST number.
14. All the details/documents which have been sought must be scanned/uploaded and self-certified by the bidder.
15. The offers of the bidders who do not fulfill the above criterion may not be considered.
16. The vendor which are blacklisted by our organization or any other dairy in GCMMF or by NDDDB are not eligible to bid otherwise, bid will not be accepted and EMD may be forfeited. Even order issued to such bidder may get cancelled.
17. The successful Bidder will be one who fully agrees to comply with all the terms and conditions of this Bid document without any omission, deviation and reservation and possesses the required qualifications and experience and whose financial bid is evaluated as the lowest by Halar Dudh Dhara Dairy.



1.2 Downloading of Tender Document

The tender document can be downloaded from website www.nprocure.com.

1.3 Submission of the Bid

The bidder has to submit Technical Bid (signed and sealed copy of tender document & technical details along with DDs of Tender fee and EMD) in hard copy through courier /registered post /in person to Purchase Department, Hapa Industrial Area, Plot no. 43, Near Ambika weighbridge, Opp. M. M. Glass, Jamnagar -361120

Bidder should submit Commercial Bid online on website www.nprocure.com.

Commercial bid in physical form (price bid) sent along with tender document to Halar Dudh Dhara Dairy will not get considered.

1.4 Bid Security

All Bids must be accompanied by Earnest Money Deposit (EMD) in the form specified in the Bidding document. The Bids not accompanied with EMD shall be summarily rejected. The Bid security shall be denominated in Indian Rupees of value as specified and shall be in the form of Demand Draft from Nationalized or Scheduled banks in favor of Shree Jamnagar Jilla Sahkari Dudh Utpadak Sangh Ltd, payable at Jamnagar. The Bid security may be forfeited if:

- A Bidder or Supplier withdraw its bid during the period of bid validity specified by the Purchase on the tender documenter
- In case of successful Bidder / Supplier, if the Bidder / Supplier fails to sign the contract or fail to deliver ordered material within delivery date in Purchase order.



1.5 Rights Reserved by Halar Dudh Dhara Dairy, Jamnagar

General Manager of Halar Dudh Dhara Dairy, Jamnagar, at its sole discretion and without assigning any reason thereof, reserves the right to accept and / or reject the whole or part of any all the Bids received.

1.6 Validity

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

General Manager
Halar Dudh Dhara Dairy,
Jamnagar



1. CheckList

The details to be provided by bidders in prescribed check list format, as below:

Sr.	Particulars	Confirmation / Status
1.	Details on Turn Over (in INR) Submit documents.	Submit documents. (in Rs. Only) Text and numbers Strictly restricted on n-procure
	Year: 2020-21	
	Year: 2021-2022	
	Year: 2022-23	
2.	Agreed for Terms, Conditions as enclosed in Annexure I (Yes / No)	
3.	Agreed for Technical Specification and data provided in Annexure-II (Yes / No)	
4.	Earnest Money Deposit (EMD) enclosed. (Yes / No) – Provide details	
5.	No of Purchase orders (PO) in which Five times of Purchase of Bulk Milk Cooler (BMC) supplied / PO. Submit documents.	(in numbers only)
	Year: 2020-21- No of POs of Bulk Milk Cooler (BMC)	
	Year: 2021-2022 No of POs of Bulk Milk Cooler (BMC)	
	Year: 2022-23 No of POs of Bulk Milk Cooler (BMC)	
6.	No of Purchase of Bulk Milk Cooler (BMC)supplied / Year Submit documents.	
	Year: 2020-21- Total Bulk Milk Cooler (BMC)	
	Year: 2021-22 - Total Bulk Milk Cooler (BMC)	
	Year: 2022-23 - Total Bulk Milk Cooler (BMC)	
7.	Duly signed and sealed copy of tender document (submit hard copy along with supporting documents to Halar Dudh Dhara Dairy)	
8.	Contact Person Name	
9.	Contact No.	
10.	Address	
11.	Email ID	

(Bidder should submit supporting documents in hard copy along with tender)



2. General Terms and Conditions

3.1 Standards

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

3.2 Patent Rights

The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial designs rights arising from use of the goods or any part thereof.

3.3 Inspection and Tests

The Purchaser or its representative shall have the right to inspect and/or test the goods to confirm their conformity to the Contract. The inspections and tests may be conducted on the premises of the Supplier or its Subcontractor(s) or at point of delivery and/or at the good's final destination.

If any inspected or tested goods fail to conform to the specifications, the Purchaser may reject them and the Supplier shall either replace the rejected goods or make all alternations necessary to meet specification requirements free of cost to the Purchaser. However, purchaser will decide for suitable option of replacement or alternations, case to case, supplier will follow purchaser's instruction/ decision, accordingly.

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

3.4 Assignment

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



Such assignment shall not relieve the supplier from any liability or obligation under the contract.

3.5 Review and Coordination

The supplier shall depute senior and competent personnel to attend the site coordination meetings that would generally be held at the site. The supplier shall take necessary action to implement the decisions arrived at such meetings and shall also update erection schedule.

3.6 Approval & Insurance

The supplier shall obtain all the necessary legal approvals, if any.

The goods in transit shall have to be insured by supplier prior to dispatch from its works/godown, the expenses for the same will be borne by supplier.

3.07 Jurisdiction

Settlement of any dispute out of the Purchase Order / Contract against this Bid shall be subject to the courts at Jamnagar, Gujarat only.

3.08 Price Basis

Price charged by the supplier for goods delivered under the contract shall not vary from the prices quoted by the supplier in its bid and the contract shall be on fixed price basis.

- Free delivery at site including loading and unloading.
- The Price specified should be inclusive of Packing and forwarding.
- GST whatever applicable,
- Transit insurance and freight (FOR site)

3.09 Bid Evaluation

Only after verification and acceptance of the technical parameters the commercial bid will be opened. **The price bid will be evaluated on FOR basis to our store / destination) for all items.** However, Purchaser will award contract for any option (Full supply / Part Supply) at its sole discretion without assigning any reason.



3.10 Delivery and Documents

All the delivery of the goods should accompany with Original and three copies of:

- The supplier's Tax invoice showing Purchase Order No., Goods Description, Quantity, Unit price, Total amount, applicable GST rate & amount, HSN code etc.
- Delivery note / Packing list * Lorry receipt.
- Manufacturer's / Supplier's Warranty Certificate, if applicable.
- Any other document evidencing payment of statutory levies.
- Test certificates of Raw Material, wherever applicable

3.11 Payment Terms

100 % payment within 30 days after receipt of goods at site.

3.12 Penalty clause

Delivery period should not be more than 30 days. If due to unavoidable circumstances, supplier is not able to deliver within maximum duration of 30 days, supplier will have to inform purchaser by official communication to extend permissible delivery period which will not be more than further 15 days i.e. total 1.5month.

If supplier fails to deliver ordered material within 1.5 month from the date of Purchase order, the Bid security may be forfeited.



3. TECHNICAL SPECIFICATION FOR 5000 LIT CAP BMCU MILK TANK:-

SR. NO	DESCRIPTION	DETAILS
A	MILK TANK AND EQUIPMENTS	CYLINDRICAL HORIZONTAL CLOSED TYPE
01	Capacity-rated	5000 Liters
02	Capacity- gross	5500 Liters
03	MOC	AISI-304
04	Type	Horizontal/ cylindrically Closed type
05	Overall dimension	As per ISO 5708 2AII
06	Overall, Weight	As per ISO 5708 2AII
07	Thickness-Inner shell - Outer shell	As per ISO 5708 2AII
08	Surface finished	Minimum 220 grits/pvc coated
09	CIP Facility	Using Balance Tank And Rotating Disc & Nozzle Spray System In Tank To Cover All the internal Surfaces
10	No. of Agitator	ONE
11	RPM of Agitator	22 to 28
12	Type of Insulation	In-situ injected CFC PUF
13	Thickness of Insulation	50 mm
14	Density of insulation	40 Kg/ Cu. meter
15	Facilities to measure Milk Quantity	SS Dip sticks with calibrated chart. Digital dip stick as option
16	Man hole cover	SS 304 with SS fastening
17	S.S 3-way plug valvs,Pipes , Support for Clamping Of Ss Line, s.s bends & unions	Pipe clamp should be of SS 304 with wing nut and support to be given from sealing and support material should be of SS 304 pipe (38 mm) and clamp as per required.
18	MILK PUMP _____	Alfa Laval/Fristamp/ Swastik/Zeutech make 3 HP three phase with outlet 38 mm having SS shroud. Impeller and body also stainless steel 304, with adjustable legs coupled with motor. L&T Make Dol Type Starter Having Relay of suitable Range To Be Provided.
19	Tank Levelling	The tank shall be with adjustable ball feet to adjust the level as per ground surface at location.
20	Ladder	Suitable SS 304 quality ladder shall be provided with the tank to enter the tank for manual cleaning when needed.



B	REFRIGERATION	3 PH, 2 CU
01	Type	Direct Expansion
02	Make of Compressor	Emerson, hermetically sealed Scroll Type
03	Model	ZB48 Suitable to meeting the cooling time 3.0 hour to bring down the Milk temp from 35 to 4 degree C as per ISO 5708 2AII Norms
04	Cooling capacity of compressor, R-22	22000 Kcal/Hour at 0 degree centigrade Evaporating temp. and 55 Degree C condensing temp.
05	Cooling capacity of condenser, R-22	38640 Kcal/hour at Ambient Temp.
06	Make of Condenser	Emerson / Equivalent
07	Model of Condenser	Copper Construction- Fin & Tube Type
08	No. of Condenser	Two
09	No. of Fans	04 (Four) 18" sweep Dia.
10	Receiver cap.	8 LIT * 2 Nos
11	Thermo static Expansion Valve, make	Emerson, MOP
12	Overall Dimension of Condenser unit	
13	Type of Refrigerant	Freon R-22
C	DESIGN PARAMETERS	
01	Manufacturing standards	ISO 5708/2A II
02	Ambient temp.	48 Degree C
03	Maximum Cooling time for 1st milking	3. 0 hour, 35 to 4 C
04	Second milking	1. 5 Hour, 10 to 4 C
05	Safe Operating Temp.	43 Deg cel.

D	VOLTAGE STABILIZER	SERVO CONTROLLED THREE PHASE 415 V WITH MCC PANEL
01	Make & Capacity	ASABA : 25.0 KVA
02	Input Voltage	350 to 480 Volts
03	Output Voltage	415 V
04	Type	Unbalanced
05	Output Voltage Tolerance	+ 1% For 415V
06	Efficiency	>98%
07	Humidity	> 95%
08	Ambient Temp	0 TO 50 Deg Cel
09	Class of Insulation	Class "B"
10	Power Factor	> 0.98
11	Correction Speed	35 V / Second
12	Protection	1, High/Low voltage output cut off. 2. Over load Protection 3. Short Circuit Protection 4. By-pass Arrangement 5. Single Phasing 6. Noise Filtering 7. Phase Failure Relay- VSPD2 8. Input Volt Meter on GEB and DG Set 9. Output Volt Meter on GEB and DG Set



		OUTPUT MCB's 4 nos
13	VOLTMETER, AMMETER & ENERGY METER	4" Square Dial with Selector switch and CT coils or Electronic type. The energy meter shall run on both GEB as well as DG Set.
E	Electric Cable	01, Cable should be of Polycab/ Finolex , supply cable from D G SET to Stabilizer should be of 6 sq.mmx4 core and Supplier will have to provide also cable of 10 sq.mm 4 core copper cable from GEB Meter to Wall mount Change over switch 02, Cable laying should be in conduit pipe 03. Cable 30 meters. in supplier scope.
F	EARTHING AS PER I.E STANDARD : 4 Nos	Earthing as per drawing and comprising of followings:- 01) Earthing plate would be of Galvanized Iron plate size 300x300x6 mm. 02) Earth pit would be 3 meter deep size 1x1 meter. 03) Water pipe is of 40 mm GI pipe 10' long with 3"funnel . 04) EarthLink connection is of GI strip 25x25x3 mm for body of equipment as well as Neutral earth of Alternator of DG set 05) Char coal- 100 Kg, Crystallized white salt 100 Kgs . 06) Distance between two earth pits at least should be 5 ft. 07) EarthLink test should be carried out and should be less than 1.0 ohm
	DIESEL GENERATOR SET	25 KVA acoustic Enclosure type, industrial purpose
01	Make of D G SET Engine	Mahindra/Eicher Air cooled/Water cooled, and D C Alternator (Dynamo) for Battery charger
02	AC alternator	Brushless type Screen protected, self-Excited, with Electronic AVR, H class insulation
03	KVA Rating/BHP rating	25 KVA, 32 BHP / 3 PHASE
04	Volts (O/P), Amp rated	415 V AC, 50 Hz
05	P.F. rating	0.8
06	Type of cooling	Air cooled/Water cooled
07	De rating factor	0.9
08	Max current	2 times KVA rating
09	Fuel consumption L/Hour on Gen set	
	Load at 25%	2
	50%	3.4
	75%	4.5
	100%	6.5



10	Conformity to noise and emission Standards	As per present norms
11	Battery	01 no 12 Volts of suitable Amp-Hr capacity, along with leads for connection
12	Residential Silencer	silencer as per specification for Heavy duty effective silencing provided with

		connecting pipe out side of room size 2.1/2" flanges.
13	STANDARD CONTROL PANEL	<ul style="list-style-type: none"> •Fabricated from CR sheet, dust and vermin proof •Volt Meter and A meter with selection switch •Frequency meter •MCCB and of suitable capacity •Safety control against- Low lub oil pressure •Safety control against Engine temp High, •Indicator Lamp 'SET ON' and LOAD ON'
14	BASE FRAME	The Diesel Engine and Alternator will be mounted on a suitable base frame sturdy design mode of steel Channel all welded and stress relieved.
G	MISCELLANEOUS	
01	<p>Please Provide the followings :</p> <p>(A) Performance curve of the Milk cooling Tank i.e. Time(hours) Vs Temperature (Deg. C) curves</p> <p>(B) The leaflet/ catalogue of the Alternator and Engine for the D G Set.</p> <p>(C) Performance chart of the D G Set showing the Fuel consumption (Liters /hr) at various loading condition and at maximum output (KW) with respect to the ambient temp. Assumed.</p>	
02	<p>THE FOLLOWING PERFORMANCE CURVES OF THE COMPRESSORS:</p> <p>(A) Evaporating</p>	



	<p>Temperature Vs cooling capacity (K cal/hr) at various condition temperatures. (B) Compressors capacity (k cal/hr) Vs Power consumption (Watts)</p>	
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SUPPLY, INSTALLATION & COMMISSIONING OF 5000 LPD BULK MILK CHILLING UNITS (ORDER)

SCHEDULE - I **TECHNICAL SPECIFICATIONS**

DETAILED TECHNICAL SPECIFICATIONS AND SCOPE OF SUPPLY

This chapter deals with the detailed specifications of items proposed in the scope of supply.

FUNCTIONAL REQUIREMENTS

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 **ISO 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 microorganisms. 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 (up to 10 AM) | -50% |
| ii) Milking in the evening | -50% |

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. The agitator shall be operated manually also with separate arrangement by means of switch or toggle.

TECHNICAL DATA

The bulk cooling tanks are built to ISO 5708 standard with categorization under Type 2 A II.

The technical data for the complete module is given in enclosed Datasheet **(SCHEDULE - II)**.

A) BULK MILK COOLER AT DCS- CAPACITY 5000L BULK MILK STORAGE TANK AND REFRIGERATION CONTROL PANEL **Bulk Milk Cooler with Cover and Standard Accessories**

4.1 Bulk Milk Storage Tank



Horizontal Closed Cylindrical tank of capacity 5000L Liters shall be supplied.

Tank inner, outer, bottom dimpled jacket 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 220 grit finish.

The tank shall be complete with following

- Top manhole cover with locking arrangement for inspection in SS 304 construction is provided. The lid shall be with Rubber Silicon gasket as air tight and also one spare gasket shall be provided.
- Milk inlet complete with specially designed no foam inlet arrangement in detachable design for easy cleaning.
- Outlet complete with specially designed lockable SS butter fly valve size 51mm and terminating in proper end connection & blank union.
- The insulation of the tank shall be done by injection, in situ, of high-density (minimum 40 kg/m³, CFC free and environment 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. The agitator shaft shall be complete of SS 304 quality with blades. The supplier shall ensure proper agitation of the milk in the tank. If needed two agitators shall be provided for Horizontal cylindrical tank. The RPM of the Agitator shaft shall be between 22 to 28 RPM. The number of Agitator shall be two nos.

4.2 Stainless Steel Sanitary Milk Pump for loading and unloading of milk:

A sanitary design mono block pump of 3 HP rating and having a capacity exceeding 10 KLPH at 25 MWC and driven by three Phase motor only in standard design is included in the scope. The pump shall have SS v/s carbon seal and will be provided with 38mm inlet and outlet connections. The pump shall be shrouded with SS 304 cover and the impeller and product conduct parts in SS 304 material. The pump shall be Alfa Laval /Fristam / Swastik / Zeutech make conforming to dairy standards.



4.3 Refrigeration Unit

The refrigeration system is designed for operation on R-22 refrigerant. The condensing units shall meet the latest safety standards.

The refrigeration system is designed with **twin condensing units for Cap: 5000 L**. 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. The condensing units shall operate on **three phase for capacity 5000 L** electric supply and each condensing unit shall comprise of the following:

- 4.4 **Compressor**- Hermetically sealed 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 thermistor temperature sensor for protection against excess heating due to over loading and short-circuiting....2 Nos
- 4.5 **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.
- 4.6 **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.
- 4.7 **Thermostatic Expansion Valve**- A thermostatic expansion valve shall be maximum operating pressure (MOP) type to ensure optimum quantity of refrigerant to the evaporator.
- 4.8 **Evaporator** - The evaporator shall be dimpled pressed 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.
Our evaporator plate is laser welded for all capacity bulk milk cooling tank.

4.9 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.

5.0 ELECTRICAL CONTROL PANEL

Electrical Control Panel



Three control panels namely

- Main control panel,
- Refrigeration control panel and
- 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:

5.1 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 '**change-over-switch**' in order to operate the DG set in place of State Electricity Board supply as & when required. It should be provided with necessary phase indication lamps (LED type), contactors, 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.

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

- Input Range - 350 to 480 VAC(3 Phase)
- Output self-adjustable for a range of $\pm 5\%$
- 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: 35 V/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 Cap: 5000L is 25 KVA.

5.2 Refrigeration Control Panel:

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

- Incoming MCB to receive power from main control panel



- 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. contactors and overload relay for the motor of compressor, condenser and agitator.

5.3 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 LCD display range (- 2.8 to 87deg.C)
- One number Thermostatic switch with temperature variation in range 0 to 16 deg. C.
- One number selector switch for selecting operation of agitator on auto or manual arrangement.

5.4 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-armored, Copper, wherever laid through conduits. The conduits shall be heavy duty PVC type.

Earthing shall be standard GI Pipe earthing. Total four GI pipe earthing with copper plates/ salt and coal shall be provided to give good earthing network for the safety of the bulk milk cooling Equipment. The earthing shall be as per the NDDB Standards.

5.5 Pumped Feed System (For all capacity)

Inter connecting pipes and Fittings: One lot of SS pipes and fittings shall be supplied to inter connect the bulk cooler with balance tank, milk pump and tanker unloading / loading hose. The piping shall include necessary butterfly valves, 3 way plug valves in line. , swing over bend connections, SS unions and support pipe holders. GI 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 existing balance tank. All the lines shall be such that each and every piece of line shall be in circulation mode.

6 DG Set3 Phases with Accessories

Diesel Generating Set with Alternator and Engine as per CPCB norms Air/water cooled diesel generating set (DG Set) with single phase/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 conforming 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 to 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 10% additional load and ambient condition of 50 Degree dry bulb temperature is considered in design.
- d) The DG set shall be suitable for operating 10% over load for a continuous period of one hour after every twelve hours of continuous operation without overheating.

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 along with oil pressure gauge.
- c. Suitable coupling shall be provided.
- d. Fuel tank of 80 L. 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 liters and hand pump for Diesel decanting is included.

Battery and Battery Charger

Included under Main Control Panel above.



Electrical Starting System

The electrical starting system is included.

The ratings considered for BMC Cap: 5000L is 25KVA.

6.0 INSTALLATION, COMMISSIONING & TRAINING

6.1. 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.

6.2. 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 days at each collection center is estimated and included for performance trial and commissioning to hand over the installation.

6.3 Training

Supplier shall arrange for training of the team of our staff for efficient operation and maintenance of the complete system.

7.0 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 /Gujarati & 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.

7.1.0 PARTICULAR:

All Purchase of Bulk Milk Cooler supplies shall be strictly as per the BIS/NDDDB specifications as per our PO instructions.

7.2.0 QUANTITY:

Location	Approximately Total Quantity
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	Nos. of BMCUs
Halar Dudh Dhara, Dhrol ,Jamnagar	1
Total	1

7.3.0 RATES:

The rates you may quote shall be on Firm Price Basis. On no other account increase/decrease in the price will be given during the supply period. You are requested to quote your rates separately for Gujarat State (Covered under Halar Dudh Dhara Dairy, Jamnagar)

7.4.0 DELIVERY:

The material has to be supplied FOR Dhrol Milk Chilling Centers in (1) Gujarat state - the dispatches are to be made as per the delivery schedule given by Halar Dudh Dhara Dairy, Jamnagar.

7.5.0 QUALITY

The material must conform to our specifications in all respects. The supplies not conforming to our specifications will be rejected at your cost and risk.

7.6.0 PAYMENT:

Payment will be released within 30 days from the date of receipt of material or invoice whichever is later and if material is found as per approved specification.



8. Tender Price Bid

This is for reference only. Bidder should fill price bid on tender website.

S N	Item Description	Specifi cation	Qty (Nos.)	Net Basic Price / Unit	Taxes per Unit	Freight & Insuranc e / Unit	Other Expense s	Amount (Rs.)
1	Bulk Milk Cooler with Scroll Compressor EMERSON ZB48 X 2 and Panels	As per Tender Document	01	ONLINE	ONLINE	ONLINE	ONLINE	ONLINE
2	Accessories incl. SS Pipes and Fittings, Stabilizer, Tool Box, electricals, cables & earthing	As per Tender Document	01	ONLINE	ONLINE	ONLINE	ONLINE	ONLINE
3	3 hp 3 Phase Milk Pump	As per Tender Document	02	ONLINE	ONLINE	ONLINE	ONLINE	ONLINE
4	DG Set Cap: 25KVA, 3 PHASE, Eicher	As per Tender Document	01	ONLINE	ONLINE	ONLINE	ONLINE	ONLINE

~ End of Tender Document ~