

## Advertisement

Date: 20.07.2020

HDF-cDAR, HIG-196 (First Floor), Kanan Vihar Phase-I, Patia, Bhubaneswar-751024, Odisha invites Tender in a sealed cover under two bid system i.e. Technical Bid & Financial Bid from OEMs/ Authorized distributors for “Supply, Installation, testing, commissioning and trial running of the machinery and equipment for Common Facility center (CFC) for Grow green dairy trust (SPV), at: Angargadia, PO: Pruthunathpur, Via Manatri, Mayurbhanj, Odisha.

<b>Date of Commencement of Tender</b>	<b>Last date of and time of submission of tender</b>	<b>Date &amp; Time for opening of Tender</b>	<b>Cost of tender paper</b>
<b>20<sup>th</sup> July 2020</b>	<b>19<sup>th</sup> August 2020</b>	<b>24<sup>th</sup> August 2020</b>	<b>Rs. 10000/-</b>

A complete set of the Bid documents containing the details of the terms and conditions may be downloaded from the website: [www.hdf.org.in](http://www.hdf.org.in) and the same can be submitted along with cost of tender paper on shape of Bank Draft. Any corrigendum/ addendum/ information related to this NIT will only be uploaded in HDF-cDAR website which will not be published in Newspapers. The authority reserved the right to accept / reject any part or all the bids without assigning any reason thereof. The authority has the right to increase/ decrease / cancel the quantity of procurement of the equipment/ instrument without assigning any reason thereof.

**DIRECTOR**

**Human Development Foundation – Centre for Development Action & Research,  
HIG-196 (First Floor), Kanan Vihar Phase-I, Patia, Bhubaneswar-751024, Odisha**

**Ph: 0674 2741219**

**Website: [www.hdf.org.in](http://www.hdf.org.in)**

**TENDER DOCUMENTS**

**SUPPLY, INSTALLATION, TESTING, COMMISSIONING AND TRAIL RUN OF  
MACHINERY AND EQUIPMENT**

**FOR**

**GROW GREEN DAIRY TRUST (SPV)**

**At: ANGARGADI PO: PRUTHUNATHPUR, VIA MANATRI, MAYURBHANJ, ODISHA**

**To Establish**

**COMMON FACILITY CENTRE (CFC) OF DAIRY PRODUCT CLUSTER, MAYURBHANJ,  
DISTRICT OF ODISHA**

July 2020

## **TENDER NOTICE**

### **(Supply, Installation, testing, commissioning and trial running of the machinery and equipment for Common Facility center (CFC) for Grow green dairy trust (SPV)**

Sealed tenders are invited from **OEMs/ Authorized distributors** for supply of machinery and equipment for establishment of Common Facilities Centre at: Angargadia, Po: Pruthunathpur, Via Manatri, Mayurbhanj being facilitated by HDF-cDAR, HIG-196 (First Floor), Kanan Vihar Phase-I, Patia, Bhubaneswar-751024, Odisha. Tender should be submitted in separate envelopes for Technical Bid and Financial Bid along with earnest money 2% of the tender value and can be deposited at the above address up to 02.00 PM of 19<sup>th</sup> August 2020. The Demand Draft of earnest money should be in the name of HDF-cDAR, Bhubaneswar. Tenders received will be opened before the working Committee of the proposed Common Facility Centre on 24<sup>th</sup> August 2020 at 11.00 AM.

Tender form can be obtained from the HDF-cDAR, HIG-196 (First Floor), Kanan Vihar Phase-I, Patia, Bhubaneswar-751024, Odisha on any working day between 20<sup>th</sup> July 2020 to 19<sup>th</sup> August from 10.00 AM to 5.00 PM by payment of Rs. 10000/-. Tender forms can also be downloaded from the web site of the HDF-cDAR [www.hdf.org.in](http://www.hdf.org.in) A demand draft of Rs. 1000/- purchased in favour of HDF-cDAR, Bhubaneswar, should be enclosed along with the Technical Bid for the Tender Forms downloaded from the website.

The details of items to be supplied and Terms and Conditions are available in the Tender Form. Director HDF-cDAR, Bhubaneswar, Odisha reserve the right to cancel any or all the Tenders without assigning any reason. `

**Director**

## TENDER FORM 1

(Establishment of Common Facilities Centre, Grow green dairy trust )

Tender Form is issued to :-

Date of issue of tender form :-

(Digital signature)

Signature of issuing authority

### A ELIGIBILITY CRITERIA:

1. The minimum turnover of the tendered firm for the last year (2018-19) should be more than Rs. 100.00 lakhs.
2. The tenderer firm should have minimum three year experience in supply of said machinery and necessary evidence in the form of invoice/ Work Orders need to be furnished.
3. The tender should be submitted in the prescribed tender form.
4. The tender forms can obtain from HDF-cDAR, Angargadia, Po: Pruthunathpur, Via Manatri, Mayurbhanj Odisha on any working day between 20<sup>th</sup> July2020 to 19<sup>th</sup> August 2020 from 10.00 AM to 5.00 PM and up to 2.00 pm. on 19<sup>th</sup> August 2020 by depositing an amount of Rs. 10000/-
5. Tender form should be deposited in separate envelopes containing Technical Bid and Financial Bid along with earnest money of 2% of the tender value at above address on or before 05.00 pm of 19<sup>th</sup> August 2020. Earnest money can be paid through DD purchased in favor of HDF cDAR, Bhubaneswar, Odisha. Exempted bidder should submit the supporting documents. The tender received will be opened before the working committee on 24<sup>th</sup> August 2020 at 11.00 am at IEDO, Bhubaneswar
6. The tender will be submitted in sealed envelopes separately for technical bid and financial bid. On each envelop "Tender for CFC for Grow green dairy trust" should be written on the top of envelop. Technical Bid and Financial Bid should also be clearly mentioned on the envelop.
7. The Technical Bid will be opened and considered first. The financial Bid of only eligible firms/agencies will be opened.
8. Tenders received without earnest money will not be accepted.
9. The tenderer firm should submit implementation plan of supplying & erection of machinery along with other details of the firm. Incomplete tender will not be accepted.
10. **The tendered firm should submit tender for the whole or part of the items mentioned below. However preference will be given for those firms which can supply all the mentioned items.**
11. Technical Bid/ Financial Bid cannot be withdrawn after opening it. Earnest money can be forfeited in case of withdrawal of bid or not completing the work.
12. If the items supplied are not found as per specifications or unsatisfactory or delivered after stipulated time, the payment of whole or equivalent amount can be withheld.
13. Secretary HDF cDAR, Bhubaneswar has reserved the right to accept the bid partially/in full or may reject any or all the bids without assigning any reason.
14. The total approved project cost for establishment of Common Facilities Centre is Rs. 375.73 lakhs, out of which maximum budget provisioned for procurement of below mentioned machinery is Rs. 240.00 lakhs.

Thus financial bid of tendered firm should not exceed the maximum limit approved.

15. The maximum time frame given for supply of machinery, erection, and training of CFC personnel is 4 months.

**B. General Condition of Supply, Installation & Commissioning of Plant**

**1. Inspection and Tests**

- 1.1. The inspection of the goods shall be carried out to check whether the goods are in conformity with the technical specification and shall be in line with the inspection/test procedures laid down in the schedule of specifications and the contract conditions.
- 1.2. The inspections and tests may be conducted on the premises of the contractor or its subcontractor(s) / at point of delivery and/or at the goods final destination. Where conducted on the premises of the contractor or its subcontractor(s) / all reasonable facilities and assistance including access to drawings and production data shall be furnished to the inspectors at no charge to the FMC. In case of any defects or deficiency notified by the FMC's inspection authority, the contractor will rectify and make good the same without delay and not proceed further processing of such items(s) of goods without obtaining approval from the inspection authority.
- 1.3. Should any inspected or tested goods fail to conform to the specifications/ the FMC may reject them and the contractor shall either replace the rejected goods or make all alternations necessary to meet specification requirements free of cost to the FMC.
- 1.4. The FMC right to inspect, test and where necessary, reject the goods after the goods' arrival at destination shall in no way be limited or waived by reason of the goods having previously been inspected, tested and passed by the FMC or its representative.

**2. Packing and Marketing**

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

**3. Delivery and documents**

- 3.1. Delivery of the goods shall be made by the contractor for destination, by road.
- 3.2. The following documents shall be provided by the contractor/ contractor.  
Original and three copies of:
- (i) The contractor's invoice showing order no. Goods description, quantity, unit price, total amount.;
  - (ii) Delivery note/packing list/lorry receipt;
  - (iii) Manufacture's/contractor's guarantee certificate;
  - (iv) Inspection certificate issued by the nominated inspection agency, and the contractor's factory inspection report;
  - (v) Insurance policy;
  - (vi) Excise gate pass/octroi receipts, wherever applicable, duly sealed indicating payments made; and
  - (vii) Any other document evidencing payment of statutory levies.

#### **4. Insurance:**

##### **4.1. For supply of equipment:**

The manufacturer shall have to arrange **all transit risk insurance warehouse to warehouse basis**, including strike clauses, for an amount equal to 110% of the FOR destination value of the Goods, valid for a period of not less than 3 months after the expected date of arrival of Goods at destination.

In the event of any damage to/loss of consignment in transit, it will be your responsibility to lodge necessary claims with the carriers/underwriters and pursue them till settlement. Since the insurance policy will be in our name, if required, we shall give you necessary authorization letter authorizing you to lodge and pursue claims on our behalf with the carriers/ under writers. Also you shall have to make good the losses/ damages occurred in transit by making replacement / payment to us in the first instance and if claims are settled by the underwriters and any amounts are realized by us, the amounts thus realized in settlement of claims shall be reimbursed to you. In other words, the prima facie responsibility rests on you for getting compensation of the damage/losses incurred if any, due to all transit hazards.

#### **5. Incidental services:**

5.1. The contractor is required to provide the following services:

- a) Performance of on-site assembly, installation, hooking-up to existing system, start up, testing, commissioning, performance trial run for a period of 30 days and handling over of the supplied goods;
- b) Furnishing of tools & tackles required for assembly and maintenance of the supplied goods;
- c) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
- d) Operation, maintenance and repair of the supplied goods for a period of 30 days, provided that this service shall not relieve the contractor of any warranty obligations under this contract; and
- e) Conduct of training of the FMC's personnel, on-site, in assembly, start-up operations, maintenance and repair of the supplied goods, if required.

#### **6. Warranty / Guarantee**

6.1 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 guarantee that the goods supplied shall perform satisfactorily as per the designed / rated/installed capacity as provide for in the contract.

6.2 This warranty/ guarantee shall remain valid for 12 months after the goods, or any portion thereof as the case may be, have been delivered, commissioned & handed over to the FMC after the performance of 30 days trial run period.

#### **7. Delays in the contractor's performance**

7.1. Deliveries in the goods and performance of services shall be made by the contractor in accordance with the time schedule specified by the FMC, in Section of the bidding documents.

- 7.2. An unexcused delay by the contractor in the performance of its delivery obligations shall render the contractor liable to any or all of the following sanctions:- forfeiture of its performance security, imposition of liquidated damages, and/or termination of the contract for default.
- 7.3. If at any time during performance of the contract, the contractor or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services. The contractor shall promptly notify the FMC in writing of the fact of the delay, its likely duration and its cause (s). As soon as practicable after receipt of the contractor's notice, the FMC shall evaluate the situation and may at its direction extend the contractor's time for performance, in which case the extension shall be notified to the contractor by amendment of the contract.

**8. Penalty for Delay**

- 8.1. If the contractor shall fail to achieve completion of the works within the specified time, then the contractor shall pay to the FMC the sum at the rate of 0.5% (half percent) of the total value of work done under the contract, as a penalty, for every week or part of the week which shall elapse, between the time prescribed and the date of certified completion of the work. The FMC may without prejudice to any other method of recovery, deduct the amount of such penalty from any payment in its hands, due or which may become due to the contractor. The payment or deduction of such penalty shall not relieve the contractor from obligations to complete the works, or from any other of his obligations and liabilities under the contract.
- 8.2. The agreement maximum of the penalty for delay payable to the FMC under this clause shall be subject to a maximum of 10% of the total value of work.
- 8.3. The criteria for deriving the penalty for delay shall be actual value of works executed and the amended time of completion.
- 8.4. Any incremental taxes and levies due to the delay in the performance of the contract by the contractor shall be to the contractor's account.

**9. Termination for default**

- 9.1. The FMC may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the contractor, terminate the contract in whole or in part,
- (a) If the contractor fails to delivery an or all the goods within the time period(s) specified in the contract, or any extension thereof granted by the FMC pursuant to clause.
- Or
- (b) If the contractor fails to perform any other obligation(s) under the contract.

**10. Force Majeure**

- 10.1 Notwithstanding the provisions of clauses hereof, the contractor shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance security or other failure to perform its obligations under the contract is the result of an event of force majeure.
- 10.2 For purposes of this clause, "force majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the FMC either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 10.3 If a force majeure situation arises, the contractor shall notify the FMC in writing of such condition and the cause thereof, within 7 days. Unless otherwise directed by the FMC in writing, the contractor shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

## **11 Mechanical Installation**

The installation work would comprise of:

- a) General installation i.e. positioning and installing all the equipments as per approved layout drawings and as per the contract.
- b) Supply and installation of structural platforms and tables.
- c) Supply and installation of all service piping including ancillary items.
- d) Insulation and cladding of piping equipment and electrical auto tracing of LSHS, including supply of materials.
- e) Interconnections of services and electrical with equipment.
- f) Guide line for expansion work.
- g) Clean up of work site.
- h) Supply of all cleaning chemicals and lubricants.
- i) Testing, commissioning and start-up.
- j) Painting including supply of paints as approved by the FMC.
- k) Training of personnel.

## **12 General Installation**

### **12.1 Positioning of equipment.**

The work involves preparation of access for moving of the plant and equipment including their fittings from the work site godown or from the place within the site where they have been unloaded, to the place of erection, decrafting and placing of the foundation wherever required. All the civil foundations as per the manufacturing / Contractor's drawings shall be arranged by the bidder. The Contractor shall place the equipment and carry out final adjustment of the foundations including alignment and dressing of foundation surface, embedding and grouting of anchor bolts and bedplates. The Contractor shall be responsible for obtaining correct reference lines for purpose of fixing the alignment of various equipment. Tolerance shall be as specified in equipment manufactures drawings or as stipulated by the FMC Engineer. No equipment shall be permanently bolted down to foundations or structure until the alignment has been checked by the Contractor and witnessed by the FMC. The contractor shall carry out minor alternations in the anchor bolts, pockets etc. at no extra cost and set the equipment properly as per approved layout, drawings and manufacturer's instructions. The Contractor shall supply all the necessary foundation/ anchor bolts and bedplates without extra cost.

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

### **12.2 SERVICE PIPING INSTALLATION**

#### **General Guidelines:**

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

12.2.1 Indian Boiler Regulations.

12.2.2 Regulations of explosives inspectorate.



- 12.2.3 All applicable Indian Standards.
- 12.2.4 All applicable State Government / Central Government laws /act.
- 12.2.5 The details of testing pressures for various pipelines are mentioned below:

Sl. No.	Name	Test Pressure	Test- medium
i.	Steam pipe lines	27 Kg/ Sq-cm	Water
ii.	Water Pipe lines (Soft, raw, chilling and glycol	8 Kg/ Sq-cm	Water
iii.	Fumace oil/ LS HS	16 Kg/ Sq-cm	Water
iv.	SS Pipes	6 Kg/ Sq-cm	Water
v.	Air	12 Kg/ Sq-cm	Air
vi.	Refrigerant Pipe lines		
	a) Suction	16 Kg/ Sq-cm	Air
	b) Discharge	24 Kg/ Sq-cm	Air

Note:

1. Duration of test shall be 30 minutes for all pipes mentioned at i, ii, iii, iv &vi with no allowable pressure drop.
2. For air lines duration of test is 8 hrs. with allowable pressure drop 0.1 Kg/ Sq-cm.
3. For Refrigerant line duration of test is 24 hrs with allowable pressure drop of 0.2 Kg/Sq-cm.
4. The FMC shall provide only water at available supply point from which the Contractor's temporary piping shall be connected.

### 13 Other Guidelines

- 13.1.1 Colour code shall be used to identify pipe material. The Contractor shall be able to identify on request all random piping prior to field fabrication.
- 13.1.2 The Contractor shall be responsible for the quality of welding done by them and shall conduct tests to determine the suitability of the welding procedure by him.
- 13.1.3 All piping supports, guides, anchors, hangers, rollers with structural frame work shall be supplied and erected by the Contractor. The kinds of pipe supports like CI clamps, wooden saddles, rollers supports and support framework shall be as per the design approved by the FMC prior to taking up the work. The necessary quantities of cleaning chemicals, lubricants, etc. required for the installation and commissioning, testing and start up of all the equipment till handling over are to be supplied the contractor and nothing extra would be paid for these.

### 14 TESTING, COMMISSIONING AND START UP(whichever is applicable)

- 14.1 The contractor shall operate, maintain and give satisfactory trial run of the plant for a period of continuous **30 days (Thirty days)** at the rated output, after satisfactory commissioning and start-up of the plant. All rectification of damages / defects and routine troubleshooting should be carried out by the contractor. The contractor shall incorporate/ execute necessary minor medications during the trial period for maximizing operational efficiency. The contractor should also execute minor modifications as may be suggested by the manufacturer/ FMC. The contractor shall suggest recommended log sheet proformas for recording necessary operating data and pass it on to the FMC in proof of satisfactory rated output and performance of the equipment / plants.

**15     The commissioning shall also include the following for each equipment (whichever is applicable):**

- 15.1     Field dis-assembly and assembly.
- 15.2     Clean out of lubrication system including chemical cleaning where ever required.
- 15.3     Circulation of lubricant to check flow.
- 15.4     Clean out and check out of all the service lines.
- 15.5     Check out and commissioning of instruments, equipment and plants, filtering and transformer and other oils so that if deteriorated, they shall attain the required properties/ standards, specified test in this regard must be carried out by approval authority and there satisfactory reports submitted to the FMC before start up.
- 15.6     Recharging are makeup filling of lubricant oil upto the desired level in the lubrication system of individual machine.
- 15.7     Operation in any empty condition to check general operation details wherever required and wherever possible.
- 15.8     Closed loop dynamic testing with water wherever required.
- 15.9     Operation under load and gradual load increase to attain maximum rated output.
- 15.10    Trouble shooting during the trial period.
- 15.11    The contractor shall demonstrate proper working of all mechanical and electrical controls, safety and protective device, in presence of the FMC technician and same should be duly recorded.
- 15.12    After conditioning testing in case a particular recruitment is not properly or not giving rated output the contractor will furnish a detailed report to the FMC stating the reason and has to be rectified.

**Declaration:-**

I do here by agree to abide by all the terms and conditions mentioned above.

(Signature of the authorized person/proprietor)

Name:

Designation:

Name of firm:

Phone/Mob:

No. : Seal of the firm:

**TENDER FORM (Supply, Installation, testing, commissioning and trial running of the machinery and equipment for Common Facility center (CFC) for Maa durgadevi producer company Ltd (SPV)**

Tender Form issued to : \_\_\_\_\_

Date of issue of tender form :- \_\_\_\_\_

(Digital signature)  
Signature of issuing authority

**Technical Bid**

**Part – 1 Description of Items**

1. Name of work: Supply and erection (where applicable) of below mentioned items:

S.No	Description of item
1	Plant and machinery for Milk processing unit
2	Machinery for Vermin compost unit
3	Machinery for Biogas plant
4	Hydroponic green fodder machine

**Part – 2 Details of firm/agency**

1. Name of Firm/Agency:
2. Registered Address of Firm/Agency:
3. Name & Phone No. of co-coordinator/contact person:
- 4. Type of Firm/Agency: OEM/ Registered Wholesaler/ Unregistered wholesaler/ Retailer**
5. Year of Commencement of work of the Firm/Agency:
6. Turnover of Firm/Agency for the year 2018-19:
7. Details of Human resources : (Man power with the firm/Agency)
8. PAN/Service Tax No. of the Firm/Agency : (Please enclose photo copy)
9. GST number
10. Description of supply of similar items done in the past by: Firm/Agency in past (Please enclosed copies of work order/Invoices)
11. Action plan for present activity
12. Other details, (If any):

**Miscellaneous :-**

1. The minimum turnover of last year (2018-19) of the Bidder Firm/Agency should be Rs. 100.00 Lakhs.
2. A demand draft of earnest amount (2% of the tender value) will be enclosed with the technical bid as earnest money. The draft will be in favor of HDF cDAR, Bhubaneswar. Exempted bidder should submit the supporting documents.

3. Balance Sheet prepared by chartered Accounts for the last three years will invariably be enclosed along with technical bid.
4. Copies of Income Tax returns for the last three years will be enclosed with technical bid.
5. **Copy of authorization from Original Manufacturer, in case the tender firm is not OEM and only authorized distributor**
6. Copy of PAN/Service Tax/GST Registration Certificate will be enclosed with technical bid.
7. The profile and following details of bidder firm/agency along with photograph, paper cutting, copy of work order will be submitted as under :-

Year	Details of items supplied	Duration	Name of party for whom items supplied
2016-17			
2017-18			
2018-19			

8. Detail of earnest money

1. D.D. No. :

2. Date :

3. Amount :

4. Name of the issuing bank :

9. If the Tender Form is downloaded from the IEDO website an amount of Rs. 500.00 (Rs. Five hundred) is essential to be deposited. The details of such amount:-

1. D.D. No.

2. Date :

3. Amount :

4. Name of the issuing bank :

**Declaration :-**

**I hereby declare that the information given in the technical bid is true and correct and I hereby accept all the terms and conditions.**

Place :

Date :

Signature of the authorized person

Name:

Designation:

Name of firm & address:

Phone / Mobile No.:

Seal of the firm:

**Form No. 3****TENDER FORM (Supply, Installation, testing, commissioning and trial running of the machinery and equipment for Common Facility center (CFC) for Maa durgadevi producer company Ltd (SPV)**

Tender Form issued to : \_\_\_\_\_

Date of issue of tender form :- \_\_\_\_\_

**(Digital signature)****Signature of issuing authority****Part -3****Description of work****1. NAME OF WORK: SUPPLY AND ERECTION OF MACHINERY FOR MILK PROCESSING PLANT OF BELOW MENTIONED ITEMS****(A) Milk Reception**

<b>Sl. No.</b>	<b>Description</b>	<b>Capacity</b>	<b>Qty.</b>
1.	Roller Conveyor:- The roller shall be of 2 ½" outside diameter, 18" long spaced at a pitch of 3 1/2." . The roller shall be provided with ball bearing at either ends to take the load of milk cans. The conveyor shall be complete with frame made of mild steel duly painted resting on legs with adjustable mild steel ball feet	-	2 mtr.
2.	Weighing scale:- Suspended type. The system would be powered with 230 V. 1Ø, 50Hz, AC, measurement will be displayed in 7 segment LED of 25mm height, auto zeroing. The unit will have a load cell which will be covered by SS outer cover.	200kgs	One
3.	Can Tipping Bar –SS:- Can tipping bar for tipping milk cans into the weigh bowl. The tipping bar shall be fabricated from 2" G.I. Class 'C' pipe and supports shall be galvanized. The tipping bar shall be encased in heavy rubber tubing and fixed to the floor by means of bolts and flanges.	-	One
4.	Dump Tank-SS-304:- This tank shall receive milk poured from the cans and acts as a balance tank for milk in between the weigh bowl, and milk Chiller/pasteurizer. Capacity: 1000 ltr ph. Slop: towards the outlet from all the three sides. Joint Curvature: All inside comers should have minimum radii of 25mm. Scope of Supply The Tank: The tank to be fabricated from 2mm thick SS sheet of AISI 304. The top edges of the tank shall be bent outward. Cover: The loose fitting sectional top cover with lifting handles should be fabricated from 2mm thick SS sheet of AISI 304. Leg: Mild steel legs gladded with SS pipe (AISI 304) with SS ball feet for height adjustment of 50mm. Outlet: The single bottom-outlet of SS 51mm diameter located in the middle of long side end. The SS Valve shall union joint, to facilitate	1000 ltr	One

	dismantling and cleaning of valve.		
5.	<p>Weigh Bowl: S.S. Weigh Bowl will be fabricated from stainless steel sheets of 2mm thick of AISI 304 quality. All the inner corners will be well radiused &amp; all SS surface will be polished to sanitary finish. The weigh bowl will have 3 way slopes towards discharge valve for free and complete drainage of liquid.</p>	200lts	One
6.	<p>S.S. Pump- This pump will be used for transfer of milk from the dump tank through chiller to chill milk stored in a raw milk storage tank. The pump will be centrifugal, mono black, type and in sanitary construction. All surface will be polished to minimum 150 grit. All product contact parts shall be manufactured out of AISI 304 material with SMS standard inlet and outlet connections with unions. The pump shall be provided with integral electric motor of reputed make having E class insulation and IP 55 protection suitable for operation on 3 Ph, 415 V, 50 HZ power supply. The flanged motor end shall have mechanical shaft seal. The pump shall have stainless steel should with air ventilation grill and adjustable ball feet legs.</p>	2000ltr per hr.	One
7.	<p>Conical Filter: Tubular type This will have filter mesh to remove the foreign particles from the milk. The mesh will be fitted into two half disc which can be quickly opened by the special clamp. The milk inlet and out let will have union for pipe line connection. All part is made from SS304.</p>	Inline	One
8.	<p>Plate Chiller: The single section place heat exchange will be used for chilling milk Inlet Temp. 35°C Outlet Temp. 4°C Gaskets CLIP ON Plate material SS 316 Chilled water requirement 1.5°C@6000</p> <p style="text-align: right;">LPH</p> <p><b>MILK CHILLER – 2 KLPH</b> Functional Requirements: - General Description: - The single section plate heat exchanger would be used for cooling whole milk with chilled water. The scope of supply includes necessary plates, sealing gaskets and supporting frame for plate pack. Operating Parameters :- All stainless steel plate heat exchanger type milk chiller capacity 2000 LPH of milk chilling for 35°C to 4°C by means of 6000 LPH chilled water at 1.0°C. Design Requirements: The chiller frame shall be in MS construction with SS 304 cladding and shall have SS tie rods, milk and chilled water inlet/outlet thermometer, SS ball feet. The inlet &amp; outlet connection shall end with SMS unions. The heat exchanger plates shall be SS 304 construction with nitrile rubber packing. PLATES: The plate pack should be fabricated from stainless steel conforming to AISI 304 or equivalent grade and should from a sanitary assembly and be suitable for effective in place cleaning operation. The design should include support arrangement to prevent the plates from deflecting high pressure differential.</p>	2000 ltr per hr.	One

	<p>The gasket supports and contact faces should ensure complete sealing and rigid support for gaskets.</p> <p><b>GASKETS:</b> Sealing gaskets must ensure complete sealing and prevent any cross leakage between product and service liquids. The material comply with food quality requirement be capable of withstanding a water sterilization temperature of 100°C and a 2% caustic solution at 70°C.</p> <p><b>SUPPORTING FRAME:</b> The support frame for the plate pack should be of a free standing design made of MS with SS cladding complete with a manually operated tightening device an adjustable SS ball feet. Pressure drop shall not be more than: Milk – 1.2 kg/cm<sup>2</sup> Chilled water – 1.2 kg/ cm<sup>2</sup> Supply shall include required no. of thermometers, a set of tools and a set of spares meant for 2 years normal operation. Please inform no. of plates, heat transfer area, thickness of the plates considered and total length of the chiller.</p>		
9.	<p><b>Milk Storage Tank:-</b> The storage tank will be Horizontal in design. The inners shell will be made of SS 304 and the outer shell will be made of SS sheet. The inner shell will be insulated with 100mm thermocole. The bottom of the tank will have a gentle slope towards the outlet. The tank will be mounted on adjustable ball feet. The storage tank will be complete with the following accessories. SS man way, SS no foam inlet, Light glass assembly, sight glass assembly, two way out let valve, sampling cock, SS vertical agitator driven by a suitable motor, MS ladder, Thermometer. (Dial Type)</p>	10,000 ltrs.	One
10.	<p><b>S.S. pipelines and fittings supports:-</b> AISI 304 piping material for inter-connecting various process equipment within the scope of supply specified above. The pipe shall be expanded type having 1.25 mm thickness. The pipes will be TIG welded and inside of the tube shall be acid pickled and outer surface polished as per dairy finish. All bends and tees shall also be manufactured out of above quality stainless steel material. All valves and fittings shall be of AIS 304 material and manufactured out of their investment castings or forging. Milk contact surface shall be ground smooth to minimum 150 grits. Outer surfaces shall be of dairy grade finish. Material for gaskets shall be of food grade nitrile rubber. The quantity of piping material is based on the standard piping practices and based on the proposed layout drawing enclosed. Any major variation in equipment layout resulting in increase of the quantity of piping material will be charged extra. The piping will be 38mm-51mm in SMS standard as applicable based on the flow rate requirements. Chilled /Hot Water Piping &amp; Condenser Water Piping shall be of MS/GI(as may be applicable) to connect the equipment in the layout. The scope of supply shall also, include material for insulation, wherever required.</p>		One lot
11.	<p><b>Steam And Water Mixing Battery:</b> <b>FUNCTIONAL REQUIREMENT:</b> It would be used for generating hot water for washing Dairy floor and</p>		3 Nos.

	<p>other uses. It should be wall mounted type complete with steam valve, water regulating and non- return valves, chromium plate mixing chamber, SS tapered outlet for connecting rubber hose and bracket for rubber hose.</p> <p><b>DESIGN REQUIREMENT:</b> Operating Principle:- Principle of operation should be direct injection of steam into water.</p> <p><b>SCOPE OF SUPPLY:-</b> Steam Valve: ½” GM steam valve with stainless steel working parts -01 Nos. Water Valve : ½” GM water regulating Valve of – 01 No. Non return Valve: ½” Non return valve on both steam and water lines – 02 Nos. Steam Mixing Chamber: It should be made of Chromium-plate gunmetal – 01 No. Outlet: ½” Tapered out for connecting rubber hose. It should be made of chromium- plate gunmetal. Bracket: It would be used for hanging rubber hose and should be made of Chromium plate mild steel- 01 No. Clamp: Serrated strip type metallic hose clamps for each battery should be supplied- 02 Nos. each Hosepipe: A rubber hose pipe of diameter ½” should be supplied loose with each battery. It should be suitable for use of hot water and steam – 10m each</p>		
12.	<p>Can Scrubber:- This will be used to clean the cans inside and outside. This is ‘U’ shape vessel with two nos. of nylon brushes running at a slow rpm. The cans to clean will be inserted inside this brush. One brush will clean the inside and other brush will clean outside. To clean the bottom of the can outside one no. small brush is provided. The trough is filled with warm water at 60 to 70 deg c. and 150 to 200 gram of washing sod is mixed with this water as detergent. The scrubber will take one minute to clean the can. The main body is made from AISI 304 sheet. The unit will have 4 nos. of legs with ball feet for floor adjustment, the drive mechanism provided at the side of the unit on a Ms. Mechanism. The unit will have reduction gear box coupled with a motor. Necessary drain</p>	40 to 60 cans per Hr.	One
13.	<p>Can Trolleys : Fabricated with MS pipe and angle to carry milk cans of 40 ltr capacity with a movable wheel alignments to move inside the plant.</p>		Two Nos.

**(B) Milk Processing Section**

Sl. No.	Description	Capacity	Qty.
1.	<p>Pasteurizer Feed Pump :- Capacity – 2000 LPH at a head of 25 MWC. Design Requirements :- General description: The pumps shall be used for transfer of milk with hygienic sealing arrangements. The pump should have 3 nos. SS shrouded leg supports, two of which shall be adjustable type. The motor section of the pump should be SS shrouded. The casing should be easily dismantlable. The SS shroud should have a provision for air</p>	2000 ltr per hr.	One



	<p>circulation and entry of electrical cable along with junction box (terminable box). The stainless used for manufacture of pump should be corrosion resistance AISI 304 for the parts coming in contact with product parts should be of AISI 304 or equivalent. All SS parts should be smooth having finish of 150 grits.</p> <p>The pumps should be provided with a union of SMS type on both inlet and outlet. A drain hole is to be provided in the seal housing.</p> <p>Electrical design data: The pumps should be coupled to the motor of 3.5 HP and should be suitable for continuous operation 400/440 volts, 3 phase, 50 Hz supply with 'E' insulation.</p> <p>One 'C' spanner and instruction manual is included in the scope of supply.</p>		
2.	<p>Milk Pasteuriser- 2KLPH Capacity-2KLPH(SKID MOUNTED) Temperature – Programme 5-45-65-80-4°C Regeneration – 90% Holding Time – 20 secs in Tubes</p> <p><b>Scope of supply:</b> <b>Plate Heat Exchanger</b> : PHE should be SS 316 tubes with gasket of NBR food grade material which would be consist of fix plate and four intermediate plates. The frame of the PHE should be clad in SS304 and should be provided with SS ball feet. Float Balance Tank: 100 ltrs capacity fabricated from 2 mm thick AISI 304 stainless steel sheet with cover, float, outlet and adjustable stainless steel ball feet. <b>Automatic flow controller:</b> (stainless steel) to maintain the required flow rate irrespective of the pressure loss. <b>S.S. Duplex filter</b> with suitable pore size to continuously processed milk. The design should be such as to facilitate quick dismantling of the filter element complete with changeover valves at inlet and outlet and air purging arrangement. <b>STAINLESS STEEL HOT WATER PUMP</b> 2 HP to match with the pasteurizer capacity. The TEFC drive motor should be fitted with SS shroud with louvers for air cooling and suitable arrangement for cabling. Stainless steel hot water set consisting of mixing chamber auto steam flow regulating valve, pressure relief valve, overflow discharge, hot water circulating pump (Cap-6000 LPH) with all inter connecting SS pipes and fittings. The hot water pump should be fitted with SS shroud with louvers for air cooling &amp; suitable cabling arrangement. Automatic control panel shall consist the following: The panel should be of floor mounted design dust, weather and vermin proof fabricated from 2 mm thick SS sheets of AISI SS 304 mtl. It should be lockable type.</p> <ol style="list-style-type: none"> <li>1. One no two pen temp. recorder with serving element for recording hot and chilled milk temperature. The recorder will be of circular/chart type having a range 0 degree, -120° C with a straight drive suitable for operation on single phase 230 V, 50 C/s AC supply.</li> <li>2. One no digital temp. indicator mounted on the panel to indicate the hot milk temp. Continuously. This shall be sensed through at PT-100 sensor. PI indicating controller, EPT, Steam flow regulating valve, PT-100 sensor senses the hot milk temp. and</li> </ol>	2000 ltr PH	One

	<p>gives a signal to PID controller which in turn actuates EPC to give the required air signal to steam flow regulating valve. Thus the flow of steam into the hot water tank is controlled in proportion to hot milk temp. so that the pasteurization or hot milk temp. is maintained at the present value (Temp. accuracy + 0.5°C)</p> <ol style="list-style-type: none"> <li>3. Pasteurizer shall also be provided with an <b>AUTO FLOW DIVERSION VALVE</b>. This valve is actuated whenever the pasteurization temp goes below the present value, thereby enabling milk to diver back to FBT. There shall be an audiovisual alarm provided for this purpose.</li> <li>4. An air filter cum pressure regulator shall be provided to control and supply air to instruments at the present value alongwith a pressure gauge to indicate the pressure.</li> <li>5. The control panel should also have a diagram showing the flow of milk and service media at various stages of the pasteurizer.</li> <li>6. Set of push buttons, rotary switch indicating lamps should be provided on the panel and prewired to indicate automatic diversion/forward portions of <b>FDV</b> as the situations may be. ON and OFF push button with indicating lamps with suitable inscriptions shall be provided for the following pumps.:  <b>Hot water Pump-1 No.</b>  <b>Chilled water pump- 1 No.</b>  <b>Emulsifying Pump-1 No.</b>  One no. main alternator with key and indication lamp for On-Off.</li> <li>7. <b>Heat Exchanger Model PAP-5:</b>  Plates- The plates shall be made from SS conforming to AISI 304 and of sanitary design. This should be readily removable for cleaning and inspection.  <b>Gaskets:</b>  The sealing gasket shall ensure complete sealing and prevent cross leakage between product and service liquid. The gasket materials shall be prod. Grade Nitrile rubber and withstand the pasteurization &amp; CIP cleaning solutions.  <b>Holding sections:</b>  It shall be designed to hold the product for minimum specified holding time at the pasteurization temperature.  <b>Supporting Frame:</b>  The supporting frame for the plate pack shall be of a self-supporting design made from SS (AISI-304) with necessary tightening arrangement. The frame shall have adjustable ball feet.  <b>Inlets/Outlets:</b>  The inlet and outlets in each sections of the heat exchanger for products and services shall be provided with complete SS (AISI-304) unions. Stainless for thermometers on all the inlets and outlets of products and steel (AISI-304) products services complete with a SS guard of at least 200mm length for mounting glass thermometers five nos. glass terameters shall be provided to measure inlet outlet or milk, pasteurized milk outlet inlet and outlet or heating and cooling media.  The heat exchanger shall have inlet &amp; outlet connections for connecting milk clarifier at 65°C and homogenizer at 65°C. Hence there shall be total 5 sections with necessary dividing plates.</li> </ol>		
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	<p>There shall be total 201 nos. of plates heat transfer areas of 0.40 sqmper plate with a total heat transfer area of 80.4sqm.</p> <p><b>Safety Device</b> A safety device shall be provided in the hot water side of heating sections to avoid damage to the heat exchanger caused by excessive pressure. It shall be of sanitary design. Inter connective pipes, valve and fittings. Sets of spare. Operating Manual</p>		
3.	<p>Cream Separator – 500 LPH (Off line) Capacity : 500 LPH Bowl: Solid wall bowl Production Discharge- Closed discharge with double centrifugal pump. Cleaning : Manual cleaning after dismantling of the bowl. Frame : Cast Iron, varnished in RAL7037, grey. Drive system: Flat belt drive with centrifugal clutch. Maximum feed pressure : 1.0bar Useful Discharge pressure (skimmed milk): 4 bar Useful discharge pressure cream-4 bar. Dimensions – L 815 mm x W 470 mm x H 1.035mm Bowl weight – 50 Kg Total weight – 305 Kg Motor power – 7.5 KW Starting type- star/delta</p> <p><b>Accessories</b> 1 foundation frame to be integrated in the floor structure. 1 set of tools for dismantling, lifting and assembling of the bowl 1 set of spares parts for commissioning 1 set of manual valves and indicating instruments for the adjustment of skim milk discharge pressure and cream flow.</p>	500 ltr per hr.	One
4.	<p><b>MILK HOMOGENIZER – (In Line)</b> <b>CAPACITY – 2000 LPH SKIED MOUNTED</b> 2000 LPH capacity Homogeniser at 200 kg./cm<sup>2</sup> shall be suitable for breaking &amp; dispensing milk fat globules having 4.5% fat &amp; 8.5% SNF to less than 2-3 microns and shall work at more than 90% efficiency. <b>Capacity- 2000 LPH</b> Max. working pressure- 200 Kg./Cm<sup>2</sup>, Two stage design with first stage 2500 PSI and second stage 500 PSI. Electric Power – The motor should be designed accordingly. No. of Plungers – 3, Material of plunger – S.S. 316 chrome plated. Homogenizing Head- Two stage hydraulic actuated with stellite valve and valve seat. Impo, stellite mall rich. Homogerized valves – Stattlite – 20 materials.</p> <p><b>CRANK CASE:</b> i) Rugged in construction and easily openable. ii) Open tpe split crank case body for easy checking and maintenance.</p> <p><b>HOMOGENISING HEAD:</b> Homogenising Head shall be two stage, removable type, hydraulically</p>	2000 LPH	One

operated with in-built Relief Valve for excess pressure. Homogenising Valve and valve seats for both 1<sup>st</sup> and 2<sup>nd</sup> stage are of Satellite Grade -20 materials. They are wear and abrasion and of interchangeable and replaceable type.

**PLUNGERS:**

Plungers are made out of Hardened Special Alloy steel in order to ensure good life for plunger packing.

**PLUNGERS PACKING:**

Plunger packing with sealing lip to prevent leakage and easily replaceable.

Cooling is to be done preferably by chilled water.

The plunger seal are of Food Grade quality, able to withstand 90°C temperature.

**LUBRICATION:**

- i) Forced feed lubrication through gear pump mounted on the shaft.
- ii) Low & high pressure cut off switches for lubrication system.
- iii) Oil level safety switches.

**COOLING:**

- i) Crank case oil cooling through tube type oil cooler to ensure that the temp. of oil does not rise above 55°C.
- ii) Gear Box cooling through water jacketed in-built in gear box casing.

**POWER TRANSMISSION:**

The primary transmission of power in Homogeniser shall be through 'V' belt and pulleys. The device with all the pulleys and 'v' belt etc. shall be on the main frame inside the shroud only. Both the pulleys (i.e. Motor as well as Homogeniser) shall be provided with Luck bush arrangement. The secondary power transmission shall be through a shaft mounted gear box located within the S.S. shroud.

**FINISH:**

All welding joints grounded smoothly. All S.S. surface would be polished to 150 grit.

**JOINT CURVATURE:**

There will not be any sharp corner edges on milk contact surfaces. Also there would not be any thread in contact with the product.

**PAINTING:**

The body of the homogenizer to be painted with coat of epoxy primer followed by two coats of epoxy paint after thorough de-rusting.

**TOOLS:**

1 set of essential tools for commissioning and maintenance of the Machine should be supplied along with the Machine.

**MOTOR CONTROL CENTRE**

Motor control centre made from CRCA sheet powder coated shall be supplied with STARTER suitable as per the rated capacity given in the technical specification and DOL STARTER for the Hydraulic pump shall be provided. The panel shall be dust proof. The panel shall be dust and vermin proof.

**N.B.:**

All milk contact surface to be made of S.S. conforming to AISI 316. The complete unit would be provided with removable S.S. enclosures to

	<p>give sanitary outlook.</p> <p><b>ACCESSORIES:</b></p> <ul style="list-style-type: none"> <li>- The inlet/outlet for product will be made up of 63.5 mm size with SMS connection.</li> <li>- Pressure gauge of imported flat diaphragm type, glycerin filled, sanitary design as per 3A standard – 1 No.</li> <li>- Instruction Manual – 03 No.</li> </ul>		
5.	<p><b>PROCESSED MILK STORAGE Tank: 5000 Ltr. (SS Outer, Double Compartment)</b></p> <p>The tank will be insulated welded construction. The tank will be in horizontal, cylindrical shape and will be standing on 4 legs. Dished and fabricated out of 2.5mm AISI 304 material polished to 150 grits with all corners rounded to minimum 25mm radii. The outer shell will be 2mm thick AISI 304 material duly polished to dairy grade finish. Insulation of 1<sup>st</sup> layer 25mm thick glass wool compressed to 10mm. 2<sup>nd</sup> layer of 50mm thick thermocole shall be provided between inner and outer shell to allow maximum temperature rise of 1<sup>o</sup>C. The tank shall have suitable slope towards enabling free and complete drainage of milk. That tank shall be horizontal cylindrical shape and will be standing on four adjustable ball fit legs. The tank shall doubled compartment and each compartment shall be complete with the following fittings and accessories.</p> <ol style="list-style-type: none"> <li>a) One 51mm outlet connection with two way plug valve.</li> <li>b) One number foam inlet in 51mm dia and SMS standard.</li> <li>c) One dust and verm-in proof air vent of suitable size.</li> <li>d) One manhole with cover clad with SS having tightening and locking arrangement making it leak-proof.</li> <li>e) Clear sand blast marking at rear indicating the levels.</li> <li>f) One sight glass assembly one light glass assembly.</li> <li>g) One set stainless steel agitator with drive system operating on 3Ph, 50 Hz, 415v, AC power supply.</li> <li>h) Spray ball arrangement with connections for cleaning.</li> <li>i) One SS sampling cock at the outlet.</li> <li>j) One Dial type thermometer.</li> <li>k) SS ladder, steps and handles in the front, and lifting hooks at the top.</li> </ol>	5000 Ltr.	Two Nos.
6.	<p><b>Float Balance tank AISI-304</b></p> <p>The 150 ltr capacity balance tank will be fabricated from 2mm thick SS 304 sheet. The tank will be provided with cover, float, outlet and adjustable SS ball feet.</p>		One
7.	<p>SS valve, Pipes and fittings:</p> <p>To be used for complete line circulation of milk from a storage tank to pasteurizer and other attachments.</p>		One lot
8.	<p><b>POWDER FUNNEL &amp; VENTURI RECONSTITUTION SYSTEM</b></p> <p><b>Capacity : 2000 LPH</b></p> <p><b>FUNCTIONAL REQUIREMENTS</b></p> <p>The unit would be required to reconstitute milk from powder and water.</p> <p><b>DESIGN REQUIREMENTS</b></p> <p><b>FINISH :</b> All welding joints are to be ground smooth. All stainless steel surface are to be polished to 150 grits.</p>	2000 Ltr. Per hr.	One Nos.

	<p><b><u>JOINTS CURVATURE:</u></b> There should not be any sharp corner or joint in the milk powder contact surface. All the corners and joints should have minimum radii of 25mm.</p> <p><b><u>SCOPE OF SUPPLY:</u></b></p> <p><b><u>FUNNEL:</u></b> The funnel should be made from 2mm thick stainless steel sheet conforming to AISI 304. The volumetric capacity of the funnel shall be minimum as per out drawing. The cone angle of the funnel should be 60°C. The upper edge of the funnel should be bend inward to avoid spillage of powder.</p> <p><b><u>VENTURY:</u></b> The ventury should be made from stainless steel sheet conforming to AISI 304. The ventury should be suitable for mounting on the delivery of milk pump for capacity 5000 LPH 10, 000 LPH- 1 No. suitable capacity milk pump shall be supplied with the system.</p> <p><b><u>FRAME &amp; PLATFORM:</u></b> The conical funnel and the ventury should be mounted on a MS frame. Frame to be completed with suitable platform and steps. All working areas should have non slippery granting.</p> <p><b><u>ACCESSOREIS:</u></b></p> <p><b><u>VALVE:</u></b>Two way 51 mm size stainless steel (AISI 304) plug type valve should be provided between the conical funnel and the ventury- 1 No.</p> <p><b><u>UNION:</u></b> Stainless steel (AISI 304) complete union should be provided as below. The two-way valve have 51 mm union on both the ends. The venture should be provided with complete union of 51mm size of both the sides.</p> <p><b><u>LEGS:</u></b> The platform and stainless steel funnel should be supported on suitable number of GI pipe legs with stainless steel ball feet. The ball feet should have provision of height adjustment of 50mm. the legs and support pipes for funnel should be clad with AISI 303 SS 2 mm sheet.</p> <p><b><u>GALVANIZING:</u></b> The complete platform along with the frame and legs should be not dip/spray-galvanized after fabrication. Before galvanizing the surface are to be prepared as per the standard practice.</p>		
9.	<p><b>CREAM AGEING TANK – 500 KG</b></p> <p><b><u>CAPACITY : 2KL/1KL</u></b></p> <p><b>1.0 FUNCTIONAL REQUIREMENTS:</b> Cream ageing tank shall be stored in this tank at a temperature of 4-6 deg. Cent by circulation of chilled water @ 1.5 deg c.</p> <p><b>2.0 DESIGN REQUIREMENT:</b></p> <p><b>Capacity :500Ltrs.</b> The volume of the tank shall be such that after filling it up to the rated capacity, the level shall be 100 mm below the line where cylindrical shell joints the conical top.</p> <p><b>CONSTRUCTIONAL FEATURES:</b> Triple walled, having Pillow Plate jacketed on shell, top mounted agitator, insulated and welded construction of sanitary design.</p> <p><b>Slope:</b> 1:15 slope shall be provided towards the outlet.</p> <p><b>Metal Contact:</b> The only metal to metal contact between the inner and outer shells shall be at the places where fittings for the tank are provided.</p> <p><b>Finish:</b> All welding joints shall be ground smooth. All stainless steel</p>	500 ltr	One

	<p>surfaces shall be polished to 150 grits.</p> <p><b>Joint Curvatures:</b>The radii of all welded and permanent attachment joints shall be at least 6mm. Where the conical top and flat bottom join the cylindrical shell the radii shall not be less than 25mm.</p> <p><b>3.0 MATERIAL OF CONSTRUCTION:</b></p> <p><b>Inner Cylindrical Body:</b> The inner shell, conical top and bottom cone shall be fabricated from <b>3mm, 2.5mm &amp; 3mm</b> thick respectively from stainless steel sheet conforming to AISI 304.</p> <p><b>Pillow Plate Jacket Body:</b> The pillow plate jacket on inner shell only shall be fabricated from <b>3mm</b> thick and pillow plate outer shell shall be <b>1mm</b> thick from stainless steel sheet conforming to AISI 304.</p> <p><b>Outer Cylindrical Body:</b> The outer shell, Top conical end and conical bottom shall be fabricated from 2mm, 2.5mm &amp; 2mm thick respectively from stainless steel sheet conforming to AISI 304.</p> <p><b>Insulation:</b> The entire intermediate shell, conical bottom and inner conical top shall be insulated in three layers as follows:</p> <p><b>First Layer:</b> 15mm thick Polyurethane (PUF) having density of 30 to 35 kg/m<sup>3</sup>.</p> <p><b>Second Layer:</b> 50mm thick Expanded Polystyrene Foam (EPS) having density of 15 to 20 kg/m<sup>3</sup>.</p> <p><b>Third Layer:</b> 50mm thick Expanded Polystyrene Foam (EPS) having density of 16 to 20 kg/m<sup>3</sup>.</p> <p><b>Finally Aluminum</b> foil of 42 SWG (0.07mm thick) covered over insulation on shell.</p> <p><b>Inner shell stiffeners:</b> All stiffeners used between inner shell and jacket shell shall be of MS.</p> <p><b>4.0 ACCESSORIES:</b></p> <p><b>Inlet cum outlet:</b> 50.8mm diameter cup type outlet with stainless steel (AISI-304) pipe.</p> <p><b>Air Vent:</b> Stainless steel (AISI 304) 150mm dia. air vent shall be provided to prevent formation of particle vacuum during CIP and pressure during filling – 1 No.</p> <p><b>Man-way:</b> Stainless steel (AISI 304) man-way of 450 mm diameter and located at conical top of the tank.</p> <p><b>Sight glass:</b> Stainless steel (AISI 304) sight glass assembly shall be provided with toughened glass. It shall be provided opposite of the light glass assembly.</p> <p><b>Agitator:</b> The complete top mounted agitator assembly shall be fabricated from stainless steel of (AISI 304). The agitator comprising of Impellers, Eff1 geared Motor of suitable capacity output to able uniformly mixing and agitation of the cream. The agitator shaft shall be made of SS rod.</p> <p><b>Jacket Connection:</b> Jacket inlet and outlet connection made from SS 304 pipe with flange shall be provided of size as per pillow plate design.</p>		
10.	<b>Cream Transfer Pump</b>	1000 ltr per hr.	One

**Requirement of Plants & Machineries for a 5000 PLD Dairy Plant**

(C) Milk Packing Section:

Sl. No.	Description	Capacity	Qty.
1.	<p><b>Double Head Mechanical Pouch Packing Machine:</b> Product : Milk Feeding System : Gravity Filter Dosage :Upto1000 ml. Accuracy: <math>\pm 0.5\%</math> from 250 to 1000 ml. under ideal working condition. Average output: 5000 packets / hr in ideal working condition. Packing Material : Virgin film-Any impulse sealing material like co-ex LDPE</p> <ol style="list-style-type: none"><li>1. Film width 324 mm <math>\pm</math> 2 mm</li><li>2. Thickness 60 to micron.</li><li>3. Maximum weight of the film rolls 18-20 kg.</li><li>4. Film roll dia-500 mm. Core dia-700 mm.</li></ol> <p>Std. Pouch size : 1000ml – 152 <math>\times</math> 255mm 500 ml -152 <math>\times</math> 160mm 250 ml- 152 <math>\times</math> 110mm 125 ml- 152 <math>\times</math> 90mm</p> <p>Type of seal: Vertical overlap – standard.Fin-optional. Horizontal round standard Extruded – optional. The machine should be provided with TTO printer for data coding and <b>PHOTOCELL.</b></p> <p><b>DESCRIPTION OF THE MACHINE:</b> <b>Machine Body:</b> This consists of Stainless Steel sheet metal built on a treated aluminum machined base plate and vertical plates. All the sub-assemblies are mounted on these machined plates. All parts in contact with product are of AISI 304 stainless steel with smooth finish.</p> <p><b>SPOOL BEARER ASSEMBLY :</b> The heat sealable film roll of 20 kg. Maximum weight will be mounted on the spool bearers at the rear bottom of the machine for each head. The spool bearer assembly is sliding type of facilitate easy change over the film roll. The film layer is then passes through various rollers and sub-assemblies such as:</p> <ol style="list-style-type: none"><li>a. End of the film.</li><li>b. Film loosening.</li><li>c. Film brake.</li><li>d. UV tubes etc.</li></ol> <p>The film layer is then formed in to a tube at the confirmatory.</p> <p><b>VERTICAL SEAL:</b> The film is overlapped and sealed into a Tube by Vertical electrode. The Jaw is Cam operated and its water cooled.</p> <p><b>FILM FEED:</b>Downward movement of the film tube is controlled by rubber nip rollers driven by grooved cam, follower, sprocket &amp; chain drive and free wheel assembly.</p> <p><b>INJECTION SYSTE:</b> The constant level tank with mechanical float is fixed on the roof of the machine. The product from tank is passed through injection tube into film tube. The fill quantity of the product in each pouch is controlled by opening of the gate valve at the bottom of the injection tube.</p>	5000 packs / per hr.	One



	<p><b>HORIZONTAL SEAL:</b> The horizontal sealing and cutting takes place at the same time by horizontal electrode mounted on fixed Horizontal jaw. The fixed horizontal jaw is water –cooled and rear moving jaw is mechanical cam operated.</p> <p><b>ELECTRICAL CONTROL PANEL:</b> The electrical switches, control relays, solid state varies, pouch counters are to be mounted on this panel. The electric control panel is at the center of the machine for convenient of the operator.</p> <p><b>OTHER FEATURES OF THE MACHINE:</b></p> <ol style="list-style-type: none"> <li>1. No Air supply should be required to run the Machine.</li> <li>2. Individual head operation. Possible 1 ltr. on one head can be packed at the same time.</li> <li>3. Auto operation of the machine stops and audiovisual alarm is given to operator is given when film Roll is over in either head of machine.</li> <li>4. Emergency switches to stop of the machine to be provided on the front side of the machine.</li> <li>5. Suitable adaptors for injection nozzles to be provided separately for CIP of the machine.</li> </ol>		
2.	<b>SS Valves and fittings</b>		One lot
3.	<p><b>SS OVER HEAD TANK</b></p> <p><b>Capacity – 500 LTR:</b></p> <ul style="list-style-type: none"> <li>• 500 Ltr. Cap. S.S. insulated balance Tank.</li> <li>• Cylindrical walled having maximum height of 700 mm from bottom of outer shell.</li> <li>• Inner &amp; Outer shell should be of 2MM thick AISI-304 material.</li> <li>• Insulation Material-100 MM thick thermocool in two layers in between inner &amp; out shell.</li> <li>• No foam inlet, over flow arrangement in top site.</li> <li>• Outlet with SS two Way plug valve of 51MM.</li> <li>• SS over in three parts, central part should be fixed &amp; should have spray ball arrangements for CIP connection in the middle fixed cover.</li> <li>• Rest of two cover should be removable.</li> <li>• Legs- SS clad legs with SS ball feet for height adjustment of 50 MM – 4 Nos.</li> </ul>	500 ltrs	One
4.	<p><b>Plastic Creates:</b></p> <p>To be used for milk packets stacking inside the creates of different volume of packets. Its should be made of food grade plastic to hold 10ltrs of milk packets.</p>	10 ltrs.	1000 nos.
5.	<p><b>Chain Conveyers:</b></p> <p><b>Functional Requirements:</b></p> <p>The roller conveyer shall be used to transport milk pouch to cold store from packing machines.</p> <p><b>Design requirement :</b></p> <p><b>Capacity:</b> Length of conveyer – 10 mtrs (This is not actual bidder quote the unit price and supply as per site requirement)</p> <p><b>Conveyer Width :</b> 450mm.</p> <p><b>Finish:</b> Roller and frame work shall be hot dip galvanized.</p>	10ft.	1 No.
6.	<b>Create Trollies:</b>	10 Crates	5 Nos.

	Fabricated with MS angles and pipes to transport the create 10 nos. at a time from one place to another all around cold store for stacking purposes.		
7.	<b>Leaky/rejected pouch collection mobile Trolley:</b> Trolley to be used to store the leaky, rejected milk packets from packing station, return from market etc. One SS box capacity of 100 ltrs be installed on a SS angle framed platform followed with rubber wheels to move the trolley along with the leaky milk to the reception dump tank to be cut and open for reused the milk after proper quality testing etc.	100 Lts	2 Nos.
8.	<b>Cold Store (walk in)</b> Cold store 10x15x10 in PUF panel with liter unit – It will come CKD form in laminated PUF panels form with air cooled condensing unit and an indoor AHU for a total capacity of TR. It will have one door. The panels will be 60mm in 40kg high density PUF laminated with powder coated galvanized sheets.	5000 Lts	2 Nos.

**(D) Product Section:**

Sl. No.	Description	Capacity	Qty.	Rate	Total Amt.
1.	<p><b>Paneer VAT- 1 KL/500ltr</b></p> <p><b>FUNCTIONAL REQUIREMENTS:</b></p> <p>The vat would be used for heating of milk from 4<sup>o</sup> C 95<sup>o</sup>C and coagulating the same at 85<sup>o</sup> C for production of paneer&amp;chhana indirectly with live steam at atmospheric pressure in the jacket. We would also need two no. of spatula with long handle perforated for scooping of coagulam</p> <p><b>DESIGN REQUIREMENTS</b></p> <p>Capacity 1 KL/500 LTR.</p> <p><b>Construction Features:</b> The vat should be tripled wall welded construction, Jacketed and insulated having rectangular cross section.</p>	500 lts	One No		

**Dimensions of Vat:**

Inner Vat	Inner Vat length	Inner vat width	Inner vat depth at outlet side	Inner vat depth at opposite side
1000 LTR.	2000 MM	1250 MM	520 MM	500 MM
Jacket	Jacketed at Length	Jacketed vat width	Jacket depth at outlet side bottom	Jacket depth at opposite
1000l	2100mm	1350mm	50mm	50mm
Outer vat	Outer vat length	Outer vat depth	Outer depth at outlet side	Outer vat depth at opposite side
1000l	2200mm	1450mm	620mm	620mm

	<p><b>Slope:</b> Both the inner and outer shells should slope towards the whey outlet as per the dimensions given above for free and complete drainage of the liquid.</p> <p><b>Finish:</b> All welding joints are to be ground smooth. All stainless steel surfaces are to be polished to 150 grits.</p> <p><b>Joint Curvatures:</b> All inside corners should have minimum radii of 25 mm.</p> <p><b>SCOPE OF SUPPLY:</b></p> <p><b>Inner Vat:</b> The inner vat should be made from minimum 3 mm thick stainless steel sheet conforming to AISI 304.</p> <p><b>Jacket :</b> Steam jacket of minimum 50mm width at all the four sides and the bottom should be provided. The jacket should be well supported with SS spacer pipe pieces.</p> <p><b>Insulation:</b> 50mm thick mineral glass wool insulation should be provided after coating inner side of the outer vat and outer side of the jacket by bitumen paint. The insulation material shall be tightly wrapped on the jacket before fixing outer vat.</p> <p>Outer vat: The outer vat should be made from minimum 2mm thick stainless steel sheet conforming to AISI 304. – 1 No.</p> <p><b>Accessories</b></p> <p><b>Steam Distribution:</b> Steam distribution system should comprise one no. of sparger pipe for 500 L and two Nos. for higher capacity, provided at the bottom jacket. The steam sparger should terminated outside with flange. The flange shall be provided with a steam orifice plate and 25 NB steam valve. 1 set</p> <p><b>Over Flow:</b> SS 304 overflow pipe of 38mm diameter for the jacket ending near the floor level 1 No.</p> <p><b>Condensate drain:</b> At the bottom of the jacket, suitable condensate outlet with valve &amp; steam rap assembly shall be provided.</p> <p><b>Safety Valve:</b> In the jacket a safety valve should be provided to avoid any pressure accumulation in the jacket. The jacket shall normally work under ambient pressure.</p> <p><b>Chilled Water Connection:</b> For cooling application, near to the steam sparker side a chiller water connection of 25NB complete with valve shall be provided in the jacket.</p> <p><b>Whey Outlet:</b> Stainless steel cup type outlet of diameter 51mm with stainless steel flanged vale (one end flanged other end SMS union) for the vat. Outlet should be at a height of 230mm from the finished floor level. 1 No.</p> <p><b>Drain:</b> Suitable stainless steel 25mm dia drain with valve for the jacket. This drain connection shall be used for drainage of cooling water from the jacket. 1 No.</p> <p><b>Strainer:</b> Sliding type strainer for the whey outlet (item 3.5.6). The strainer should be made from SS316 wire mesh fixed in frame.</p> <p><b>Legs:</b>Mild steel legs 38 mm diawith stainless steel (AISI 304) pipe cladding with stainless steel ball feet provided at the bottom of the tank. The ball feet should have provision for height adjustment of 50mm, 4 Nos. for cap upto 1000 L and 6 Nos. about it.</p>		
2.	<p><b>Paneer Hardening Tank Cap. 500 lts</b> The rectangular shape stainless steel tank will be fabricated from</p>	500 lts.	One No

	<p>S.S. sheet of 2mm thickness conforming of AISI 304 quality. The proper insulation between inner and outer shell by PUF having 50mm thick. Outer shell with flat Bottom will be fabricated from 1.6mm thick S.S. Sheet of AISI 304 quality. The tank will be welded construction, welding done by argon arc welding process. All the welds will be polished and finished to dairy standards. All the corners will be well radiused. The tank will have one-way slope towards outlet for free &amp; complete drainage of liquid.</p> <p>The tank will have following fittings.</p> <ol style="list-style-type: none"> <li>1. 1 No. S.S. outlet of size 38 mm ending on outside in a Union.</li> <li>2. 4 Nos. S.S. Pipe legs with adjustable ball feet.</li> <li>3. 2 Nos. S.S. Cover in 1.6mm thick.</li> </ol>		
3.	<p><b>PANEER PRESS- 60 KGS/BATCH (Pneumatic Type)</b></p> <ol style="list-style-type: none"> <li>1. <b><u>FUNCTIONAL REQUIREMENTS:</u></b> <p>The paneer press shall be used to expel the whey from the coagulated mass poured in alongwith whey in the perforated hoops. The mass in the hoop shall be put under uniform pressure applied through pneumatic cylinder.</p> </li> <li>2. <b><u>DESING REQUIREMENT:</u></b> <p>Capacity : 60 Kgs/batch</p> <p>Constructional features: The paneer shall have Two pressing station equipped with pneumatic cylinders. The station shall have tabletop on which the filled hoops are to be placed just below the pneumatic cylinder. Each cylinder shall have independent air control valve. Below the table a tray with an out let shall be provided to collect the whey expelled out from the paneer block.</p> </li> <li>3. <b><u>SCOPE OF SUPPLY:</u></b> <p>Paneer Press: The paneer press shall be mounted on MS table of suitable size. Four pneumatic cylinder with press pad are to be fitted equi-distance across the length of the table. The pneumatic cylinder shall be designed by the bidder to meet the requirement. The pressing pad shall be MS plate clad with SS 304. Each cylinder shall have a manually operated air control valve to control the forward and reverse option of the piston. The operating pressure of the pneumatic cylinder shall be 5.0 kg./cm<sup>2</sup>. Suitable guide shall be provided on the table for positioning of the filled hoops below the pressing cylinders. A SS 304 tray shall be provided to collect the whey expelled out from the paneer hoops.</p> <p><b><u>Air Supply Header:</u></b> ½" MS "C" class pipe air header of full length of the table shall be provide complete with air regulator ½", 0-10 Kg./Sq.cm, pneumatic tubing &amp; ON-OFF control valve at each station.</p> <p>Table: The table shall be fabricated from suitable size MS angles &amp; Channels. The table top shall be of 4 mm thick MS plate duly supported at each station.</p> <p><b><u>Whey Collection Tray:</u></b> The Tray shall be of SS 304, 1.2 mm thick and of table size. The tray shall have 4 Nos., 20mm dia, drain holes, two at the centre and one each at the end. The drain</p> </li> </ol>	60kg each	1 No.

	<p>holes shall protrude through the MS table top which act as tray locator also. The tray shall be welded with paneer hoops guide of SS 304 angle 25×25×3mm at each station.</p> <p><b><u>INSTALLATION &amp; COMMISSIONING:</u></b> Installation, testing &amp; commissioning of the paneer press is in the scope of the bidder.</p> <p><b><u>MAKES OF BOUGHTOUT ITEMS:</u></b> Bidder shall furnish makes of all bought items considered for manufacturing / assembly of the paneer press alongwith the technical leaflet.</p>		
4.	<b>PANEER PRESS HOOPS- 10 KG/batch</b>	10kg each	10 Nos.
	<p>1. <b><u>FUNCTIONAL REQUIREMENTS</u></b> The paneer press hoops shall be used to expel the whey from the coagulated mass poured in along with whey with the help of paneer press. The mass in the hoop shall be put under uniform pressure applied through pneumatic cylinder.</p> <p>2. <b><u>DESIGN REQUIREMENT:</u></b> Capacity : 10 kg/hoop Constructional features: The paneer press hoop shall have three piece construction. The filled hoops are to be placed just below the pneumatic cylinder. Paneer Hoops shall be suitable for approximate holding capacity of 10 Kgs. The assembled size of the hoop shall be 325 L × 325 L × 85 H, made out of SS 304, 2 mm thick perforated sheet complete with guide ring, covers, bar handles and spacing bars. Finish: All weld joints are to be ground finish. Product contact surface shall be polished to 150 grit finish.</p> <p>3. <b><u>SCOPE OF SUPPLY:</u></b> Paneer Hoop Bottom: The bottom shall be made out of SS 304, 2th perforated sheet. The size of the box shall be 325 L × 325 W × 85 H having 4 mm dia, perforation at triangular pitch of 50mm at bottom and all the four sides. On two sides SS 304, 10mm dia, rod handle shall be provided for lifting. In the top row at four corners 6 mm dia holes shall be provided to insert 5 mm dia SS 304 spacing rod with eye at one end (2 Nos. in each hoop). Paneer Hoop Side Ring: The ring shall be made out of SS 304, 2th perforated sheet. The length &amp; width shall be 324 mm, however, the depth shall be 85mm. Paneer Hoop Top Cover: The top cover shall be made out of SS 304, 2th perforated sheet with the same perforation as in bottom &amp; side ring. The length &amp; width shall be 323 mm and folded depth shall be 15mm.</p>		
5.	<p><b><u>SS TABLE:</u></b> To be used to cut the paneer block in the desired Packed of 200 gm to 5 kgs packs. Table will be fabricated from SS 304 (SS frame made from SS 32mm square pipe) and top will be made from SS 304 sheet of 2mm thick strong enough to with hold the weight of 500kgs materials i.e. Paneer blocks.</p>		One
6.	<p><b><u>VACUUM PACKING MACHINE</u></b> Capacity : UPTO 5 KG PACK SIZE-02 CYCLES /MIN</p>		One

1. **FUNCTIONAL REQUIREMENT:**

The vacuum packaging machine shall be used for packing of various dairy products viz. paneer, cheese, khoa, channapodo etc. in the retail packing of 100 gms or bulk packing of 5 kg in pre-formed pouches of multi-layer oxygen barrier film.

2. **DESIGN REQUIREMENT:**

The trolley type model shall have high –density acrylic see through lid with body fabricated out of stainless steel material confirming to AISI 304. The size of the vacuum chamber shall be 500 × 550 × 125 mm, which shall be sufficient to hold at least four filled pouches of 1000 gms on two seal bars located one on each side of the machine or one pack of 5 kg. at a time.

The machine shall have facility for inert gas flushing. It shall also have additional seal pressure arrangement. The machine shall have facility to cut the excess material on sealed edge during sealing operation itself. Approximate bag size may be taken as 8" W × 10" L for 1 kg. product.

3. **SCOPE OF SUPPLY**

**Type:** Single chamber, double seal bar and trolley mounted type machine.

**Capacity:** Suitable to seal retail packs of 100 gms to 1000 gms, 4 packs at a time or single bulk pack of 5 Kg. The cycle time for sealing shall be 2 cycles/min. with full vacuum, loading and unloading time shall be at actual.

**Model:** The machine shall be custom made, suits the requirement of the technical specifications.

**Materials of construction:** Chamber and housing shall be fabricated out of stainless steel material confirming to AISI 304. See through openable lid should be of high-density acrylic material of 25mm thickness.

**Chamber:** The chamber shall be suitable to hold minimum four packs of retail size at a time or one pack of bulk size. The size of the chamber should be 500 × 500 × 125 mm.

**Seal Bar:** The vacuum machine shall be provided with two seal bar, one on each side. The biactive seal bar shall be suitable for sealing multi-layer oxygen barrier material of thickness upto 200 micro. The length of the seal bar is min 475 mm.

**Gas Flushing:** The machine shall have in built gas flushing facility to remove effectively air from the pouch and the chamber and flush inert gas in the chamber. The flushing arrangement shall have necessary controls for calculated quantity of inert gas flushing per cycle.

**Seal pressure:** Machine shall be equipped with an in built facility for applying additional sea pressure particularly when in higher film thickness is used.

**Excess material cutting:** The machine shall have in built facility to cut the excess at the seal edge during sealing cycle itself. At the same time cut off film material should not be stuck with the seal bar.

**Bag size:** Machine shall be suitable to pack any size of the bag upto 8"× 10" (4 bags at a time) per cycle or single bigger bulk pack per cycle.

**Overall size:**The overall size of the machine shall be 600 × 750 ×

	<p>900 mm Vacuum level: The maximum vacuum level can be achieved on this machine shall be 99.9% (725 Hg) in any of the cycle and the vacuum level shall remain constant during the operation to achieve butter packing results. To achieve the desired vacuum level, a Hindvac, 21m<sup>3</sup>, p/h vacuum pump with 1 HP single phase motor should be provided.</p> <p><b>Electric Load:</b>Total electrical load to run the machine shall be 1/3 phase, 230/440V, 50Hz.</p> <p><b>Additional features:</b> Digital microprocessor control with 15 memories and accuracy upto 1/10th of a second.</p> <p><b>4. TESTING &amp; COMMISSIONING:</b> The manufacturing shall be responsible for satisfactory commissioning of the machine at site. Supplier shall demonstrate the performance of the machine by packing different sizes of product's packs at various vacuum levels.</p> <p><b>5. DRAWING APPROVAL &amp; INSPECTION:</b> Before starting of manufacturing of machine the supplier shall get their drawing approved by FMC by submitting two sets of drawings. Inspection shall be carried out during manufacturing based on the approved drawing and specifications.</p>		
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**(E) Dahi/Lassi/ Butter Milk section:**

Sl. No.	Description	Capacity	Qty.
1.	<p><b>CURD PASTURISER SKID MOUNTED</b> With accessories like, Inline Filter Size: 38mm Float balance tank (60 ltrs) Milk process pump (1HP) Manually flow regulating valve (size.38mm) Manually 3 way valve (size. 38mm) Remote control panel with TI &amp; TIC (4nos.ON/OFF switch) Milk holding in SS tubes for 10min with inter connecting pipe fittings complete mounted on SS frame.</p>	500 ltsper hr.	One No
2.	<p><b>Double Head Mechanical Pouch Packing Machine:</b> Product : Milk Feeding System : Gravity Filter Dosage :Upto 1000 ml. Accuracy: ± 0.5% from 250 to 1000 ml. under ideal working condition. Average output: 5000 packets / hr in ideal working condition. Packing Material : Virgin film-Any impulse sealing material like co-ex LDPE</p> <ol style="list-style-type: none"> <li>5. Film width 324 mm ± 2 mm</li> <li>6. Thickness 60 to micron.</li> <li>7. Maximum weight of the film rolls 18-20 kg.</li> <li>8. Film roll dia-500 mm. Core dia-700 mm.</li> </ol> <p>Std. Pouch size: 1000ml – 152 × 255mm 500 ml -152 × 160mm</p>	2500ltrs/hr	One No

	<p>250 ml- 152 × 110mm  125 ml- 152 × 90mm  Type of seal: Vertical overlap – standard.Fin-optional.  Horizontal round standard  Extruded – optional.  The machine should be provided with TTO printer for data coding and <b>PHOTOCELL</b>.</p> <p><b>DESCRIPTION OF THE MACHINE:</b></p> <p><b>Machine Body:</b> This consists of Stainless Steel sheet metal built on a treated aluminum machined base plate and vertical plates. All the sub-assemblies are mounted on these machined plates. All parts in contact with product are of AISI 304 stainless steel with smooth finish.</p> <p><b>SPOOL BEARER ASSEMBLY :</b></p> <p>The heat sealable film roll of 20 kg. Maximum weight will be mounted on the spool bearers at the rear bottom of the machine for each head. The spool bearer assembly is sliding type of facilitate easy change over the film roll. The film layer is then passes through various rollers and sub-assemblies such as:</p> <ul style="list-style-type: none"> <li>e. End of the film.</li> <li>f. Film loosening.</li> <li>g. Film brake.</li> <li>h. UV tubes etc.</li> </ul> <p>The film layer is then formed in to a tube at the confirmatory.</p> <p><b>VERTICAL SEAL:</b> The film is overlapped and sealed into a Tube by Vertical electrode. The Jaw is Cam operated and its water cooled.</p> <p><b>FILM FEED:</b> Downward movement of the film tube is controlled by rubber nip rollers driven by grooved cam, follower, sprocket &amp; chain drive and free wheel assembly.</p> <p><b>INJECTION SYSTE:</b> The constant level tank with mechanical float is fixed on the roof of the machine. The product from tank is passed through injection tube into film tube. The fill quantity of the product in each pouch is controlled by opening of the gate valve at the bottom of the injection tube.</p> <p><b>HORIZONTAL SEAL:</b> The horizontal sealing and cutting takes place at the same time by horizontal electrode mounted on fixed Horizontal jaw. The fixed horizontal jaw is water –cooled and rear moving jaw is mechanical cam operated.</p> <p><b>ELECTRICAL CONTROL PANEL:</b> The electrical switches, control relays, solid state varies, pouch counters are to be mounted on this panel. The electric control panel is at the center of the machine for convenient of the operator.</p> <p><b>OTHER FEATURES OF THE MACHINE:</b></p> <ol style="list-style-type: none"> <li>6. No Air supply should be required to run the Machine.</li> <li>7. Individual head operation. Possible 1 ltr. on one head can be packed at the same time.</li> <li>8. Auto operation of the machine stops and audiovisual alarm is given to operator is given when film Roll is over in either head of machine.</li> <li>9. Emergency switches to stop of the machine to be provided on the front side of the machine.</li> </ol> <p>Suitable adaptors for injection nozzles to be provided separately</p>		
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	for CIP of the machine.		
3.	<p><b>CURD Setling TANK</b>  <b>(S.S. Outer) Rectangular Shape</b>  The inner shell rectangular with flat bottom will be fabricated from 2mm thick S.S. sheet. Outer shell with flat bottom will be fabricated from 1.6mm thick S.S. sheet of AISI 304 quality. The inner shell will be properly sloped towards the outlet for free drainage of products. The proper insulation between jacket and outer shell by fiber glass wool having density 48kg/M3. The tank will supplied with the following fittings and accessories.</p> <ol style="list-style-type: none"> <li>1. One no. S.S. outlet of 38mm ending an outside in a 2way valve with union.</li> <li>2. Jacket water inlet of 38mm.</li> <li>3. Steam spurge of 25mm dia at sight bottom.</li> <li>4. Jacket drain of 25mm.</li> <li>5. Jacket overflow of 38mm.</li> <li>6. Top cover in S.S. 304 of 1.6mm thick.</li> <li>7. One No. S.S. thermowell for dial thermometer.</li> <li>8. Four Nos. S.S. conical legs with adjustable ball feet.</li> </ol> <p>Test: All the S.S. joints will be ground smooth and subject to D.P. Test and polished and finished upto 150 Grits. Jacket will be tested with water fillup test at our end.</p>	500 lts	One No
5.	Lassi Pump	500 lts / hr	2nos
6.	LassiChiler	500 lts/hr	One No
7.	SS Valve, pipes & fittings		One lot
9.	<p>Dahi incubation room:  It will be in off panel with ltr unit. It will come in CKD form in laminated PUF panels form with sustained for maintaining incubation temperature form 35 to 48°C with the automatic off and on switch with the variation on incubation temperature inside the room.</p>	10ft x 12ft x8ft	One No
10	<p><b>Cold Store (walk in)</b>  Cold store 10x15x10 in PUF panel with liter unit – It will come CKD form in laminated PUF panels form with air cooled condensing unit and an indoor AHU for a total capacity of TR. It will have one door. The panels will be 60mm in 40kg high density PUF laminated with powder coated galvanized sheets.  Note: It shall have with the facility of thrash cooling.</p>	5000 Lts	One No

**(F) GHEE SECTION**

Sl. No.	Description	Capacity	Qty.
1.	<p><b>GHEE BOILER : CAP.500 LTRS.</b>  The inner shell with cylindrical body, hemispherical bottom will be fabricated from S.S. 6mm thick conforming to AISI 304 grade. Intermediate shell with hemispherical bottom will be fabricated from M.S. plate of 6mm thickness. Outer shell with hemispherical bottom will be fabricated from 2mm thick S.S. 304 sheet.  <b>Insulation:</b> By Rock wool type glass wool between the outer shell and intermediate shell and the insulation will withstand the steam temperature.  <b>AccessoriesFitting:</b> Sweeping type agitator with geared motor of</p>	500 lts	One No

	<p>1HP, S.S. Girder of 5mm thick, S.S. Semi circular removable cover of 1.6mm thick, Steam inlet of 20NB with valve, Condensate outlet with thermodynamic steam trap and bypass arrangement, Jacket safety valve, Bottom &amp; Side outlet of 38mm with S.S. plug valve, S.S. Pipe legs of 51mm with adjustable S.S. ball feet.</p> <p>S.S. plug valve, S.S. Pipe legs of 51mm with adjustable S.S. ball feet.</p> <p><b>Test:</b> We will carry out hydro test at 6 Kg/Cm<sup>2</sup> for jacket &amp; all S.S. surface will be polished up to 150 Grits.</p>		
2.	<p><b>SS BALANCE TANK 100 LIT.</b></p> <p>Made from SS 304 2mm Thk sheet with 38mm milk inlet/33mm outlet, overflow &amp; Magnetic float level switch. High &amp; low level to control the milk pump supply 51mm outlet/over flow with nut liner, 50mm thkpuf Insulation &amp; SS 1.6 mm thk outer cladding, SS cover, Four lag with ball feet &amp; 2 Nos High &amp; low Magnetic float level switch.</p>	100 Lts.	One No
3.	<p><b>Ghee Storage Tank Cap. 500 Ltrs. (Outer S.S. 304 2mm Thick)</b></p> <p>The Inner Shell will be fabricated from 2 mm thick S.S. Sheets of AISI 304 quality. Top conical dish will be fabricated from 2mm thick S.S. Sheets of AISI 304 quality. Bottom Rives Conical Dish will be fabricated from 2 mm thick S.S. sheets of AISI 304 quality.</p> <p>The Inner Jacket Shell &amp; Flat Bottom Dish will be fabricated from 2mm &amp; 2mm thick S.S. sheets of AISI 304 Quality. The inner Jacket shell will be thermally insulated with 80mm glass wool insulation in 48 Kg/meter Dencity. The outer shell, and Flat Bottom dish ends will be fabricated from 2mm thick S.S. sheet of 304 grad. The tank will be supplied with following fittings/accessories.</p> <ol style="list-style-type: none"> <li>1) One No. S.S. vertical fully suspended type agitator speed 20 rpm. 1 HP 3Ph.</li> <li>2) One No. Side bottom outlet 38 mm pipe with 2 Way Plug valve.</li> <li>3) One No. no-foam inlet size : 38mm</li> <li>4) One No. CIP nozzle: Fix type, Size-38mm pipe with Spray Boll, 100mm Dia.</li> <li>5) One No. sight glass assembly. Size 120mm.</li> <li>6) One no. light glass assembly. Size 120mm.</li> <li>7) One No. Air vent dust and vermin proof. Size 200mm.</li> <li>8) One No. Top manhole 450mm Dia. with cover.</li> <li>9) One No. S.S. thermowell near the outlet valve for mounting the dial thermometer.</li> <li>10) One No. S.S. 304 Grade Jacket water inlet Sprinkler Pipe of 25mm Dia.</li> <li>11) One No. S.S. 304 Grade Steam spurge of 25mm dia at side bottom.</li> <li>12) One No. S.S. 304 Grade Sypon Pipe of 38mm dia.</li> <li>13) One No. Jacket drain of 38mm.</li> <li>14) One No. Jacket over flow of 51mm.</li> <li>15) Four Nos. S.S. 304 conical legs with adjustable ball feet.</li> <li>16) Chemical Estching level marks at an interval of 500 Ltrs.</li> </ol> <p>Note: All the welds will be ground smooth and will be subject to D.P. test. The entire S.S. inner/ outer surface will be polished to sanitary finish. The entire inner corner will be well radices. The</p>	500 lts	One No

	inner S.S. shell will be tested for water fill up test.		
4.	<p><b>Ghee Settling Tank.</b>  The inner shell will be cylindrical in shape in S.S. 304 grade of 2mm thick and bottom dish ends in conical shape of S.S. 304 grade of 2mm thick.  Jacket will be of S.S. sheet of 2mm thick with flat bottom.  Outer shell with flat bottom will be fabricated from S.S. 2mm Thick.  The proper Insulation between jacket and outer shell by Glass wool material.  All the inner shell welding joints will be ground smooth and polished up to Dairy finish.</p> <p>Accessories Fitted:  1) S.S. Bottom outlet of 38mm with 2 way S.S. plug Valve .....No.  2) S.S. Side Outlet of 38mm with 2 way S.S. Plug Valve..... 1 No.  3) S.S. Grinder of 4mm thick for mounting the geared motor.....1 No.  4) S.S. No foam inlet of 38mm..... 1 No.  5) S.S. thermowell for dial thermometer..... 1 No.</p>	500	One No
5.	<p><b>Ghee transfer pump:</b>  The S.S. centrifugal pump will be directly coupled to a 1 HP, 2,900 RPM TEFC NGEF/ Hindustan motor suitable for the operation on 3 phase, 400/440 Volts, 50 Hz. A.C. supply. All the components coming into direct contact with milk will be fabricated out of S.S. parts will be finished to the dairy standards. The motor portion of the pump will be S.S. shrouded. The shroud will have air circulation holes and cable entry. The pump will be fitted over 3 legs and S.S. ball feet for vertical adjustment. The pump will have following:  1) 38×38 mm suction and discharge nozzles fitted with union.  2) One no. carbon mechanical seal.</p>	2000 lts per Hr	One No

**(G) Utility Section:**

Sl. No.	Description	Capacity	Qty.
1.	<p><b>Refrigeration plant :</b>  <b>Ice Bank Tank:-</b>Ice bank tank is manufactured in MS plate of 12mm thick for bottom and 6mm thick for sides and partitions with necessary reinforcements. The tank shall be insulated with 75mm thick expanded polystyrene heavy density for floor &amp; normal density for sides.  <b>Evaporative coil:-</b> Evaporative coil fabricated out of semi-hard copper tubes of 5/8" dia for ice accumulation of suitable length complete with necessary fittings and mountings.  <b>Agitator:</b> Agitator assembly with drive systems suitable for operating 1 HP, 3 Phase 415 V, 50Hz Ac power supply.</p> <p>Wooden covers made in a sections for easy removal of inspection.  Refrigeration control ice thickness control</p>	5tr.	2 nos.

	<p>MS pipe &amp; fittings for chilled water.</p> <p>Chilled water pump: Monoblock type water pump of reputed made in a cast iron with 2HP electric motor.</p> <p>Auxiliary Panel: Auxiliary Panel mounted on Chilled water tank/ wall will be of CRCA sheet complete with internal wiring, controls, fuses, on/off switches with indication lamps.</p> <p><b>Air Cooled Condensing units-</b> The condensing unit shall be comprising of Hermetically sealed compriessors from kirloskar Copeland, make refrigeration compressor operating on Freon/ammonia-22 refrigerant at (-)7°C evaporation temperature (+) 50°C condensing temperature air cooled condenser and other standard accessories and fittings. The Refrigeration circuit shall be complete with:</p> <ol style="list-style-type: none"> <li>a) Rotalock at suction &amp; discharge side.</li> <li>b) Low/high pressure pressostat.</li> <li>c) Liquid receiver.</li> <li>d) Liquid receiver Rotalock.</li> <li>e) Filter/Drier.</li> <li>f) Solenoid valve.</li> <li>g) Spyglass.</li> <li>h) Thermostatic expansion valve.</li> <li>i) Evaporator, part of the ice bank tank.</li> </ol> <p>The unit will be mounted on a base frame with legs. Optionally the remote installation of condensing unit can be made possible to achieve better ventilation.</p> <p><b>Fully automatic control panel-</b> The MCC Panel shall be manufactured in sheet steel enclosed, cubical type dust and verm-in proof suitable for 400 / 440V, 50HZ, 3Ph, AC power supply. The Panel shall be complete with necessary in coming circuit breaker of suitable capacity, along with Ammeter, Voltmeter selector switches, indication lamps and out going well distributed on the BUS bar with MCB units, starters, over load relay, push button indication lamps etc. to energies and control the equipment within the processing plant.</p> <p>One lot of power and control cables to connect and control different equipment within the scope of supply of suitable ratings and length. The scope of supply shall also, include cable trays, supports and miscellaneous hardwars etc.</p> <p><b>Chilled water pump-</b> Mono block type water pump of reputed make made in cast iron with 2.0 HP electric motor Auxiliary Panel.</p>		
2.	Air Compressor	5HP	1 unit
3.	<p><b>TECHNICAL SPECIFICATIONS: ROSSMAKE NON IBR STEAM BOILER, MODEL RSW</b></p> <ol style="list-style-type: none"> <li>1. Boiler – Make ROSS</li> <li>2. Boiler Type- Vertical, once through coil type, reverse flue, three pass steam boiler</li> <li>3. Model :- RSB 300</li> <li>4. Steam output- 300 kg/ hrFrom&amp; At 100 deg C</li> <li>5. Design / working pressure:- 10.5 kg/cm<sup>2</sup></li> <li>6. Saturated steam temp: 183 deg C</li> </ol>	300KG	

7. Feed water inlet temp:- 40 deg C maximum
8. Thermal efficiency on LCV:- 89±2%
9. Fuel for combustion:- Light oil (HSD), LCV= 10, 300 kcal / kg.
10. Rated fuel consumption:- 24 kg / hr
11. Burner output control :- On-Off
12. Burner motor 0.75 Kw 13 Feed water pump motor 0.75Kw.
13. Total connected electric load 1.5 Kw.
14. Electric power supply 415 V, 3 phase, 50Hz, 4 wire.
15. Ambient temp & site altitude 5 to 40 deg C. Max 500m above MSL
16. Pressure part tube grade BS 3059, Part 1, ERW tubes.
17. Heating surface area 5.83 m<sup>2</sup>
18. Overall dimensions W= 1800, D=2100, H=2500mm
19. Dry weight of boiler 850kg

**CONTROL INSTRUMENTATION AND SAFETIES:**

1. Pr switch to regulate stem pr through ID fan on-off operation.
2. Mobrey level switches to maintain boiler water level through feed water pump on-off operation and for low boiler water level alarm & trip.
3. Flue gas thermostat for safety against high stack temperature.
4. Pressure indicator to indicate steam pressure.
5. Steam safety valves, 2 nos mounted on boiler shell.
6. Water softening unit- to be used for this boiler.
7. .... as per 1b rule .....

**Design Consideration Glycol Chilling Systems**

Milk in Temp:- 8 Deg C  
 Heating Temp:- 80 Deg C. (Reg Eff.90%)  
 Milk out Temp:- 4 Deg C.  
 Glycol in Temp:- 1.0 deg C  
 Heat Load :- 13 Kcal/Lts.  
 Capacity :- 2,000 Lts/Hr.  
 Glycol Tank:- 500 lts.  
 Ambient Temp:- 36°C

**2 Technical Data of Ref System**

A Compact Chiller.

- 1) Emerson or any reputed sealed compressor -2 Nos.
- 2) Air cooled condenser with M S encl.- 1set
- 3) Brazed PHE with S.S.316 Plates Dual Circuit-1 No.
- 4) Refrigeration Accessories Filter Drier, Thermostatic- 2 set.  
Expansion Valve, Moisture indicator cum sight glass, solenoid valves, etc.
- 5) M.S. structure with Powder Coated Covers – 1 No.  
Including Copper piping & amp; First charge of Refrigerant R22 including standard Accessories.
- 6) Control Panel in M.S powder coated enclosure with -1 No.  
ABB MCB for each system, ABB contractors & Temp. Ind Controller
- 7) 2HP. Pump for chiller water circulation- 1No.

	With insulated internal piping.  B Glycol Tank. 1) Stainless Steel 1.6MM Glycol Tank 500 Lts. – 1 No. Inner SS 304, Outer G I Painted with 80 MM PUF insulation with strainer 1 HP Circulation Pump for Pasteurizer.		
4.	Electrical Section shall consist of electrical motor control centre, electrical wiring, cable trays panels etc.	One lot	
5.	Utility pipes including steam pipes, valves, fittings, chilled water pipes, valves & fittings	One lot	
7.	Technical Specification for ETP Plant	10 KLPD	

**(H) Others:**

Sl. No.	Description	Capacity	Qty.
1.	<p><b>ROAD MILK TANKER</b></p> <p>S. Barrel Cap. 6000 liters. Would be mounted on TATA LPT 709 chassis for using as a Road Milk Tanker for transportation of pasteurized/ chilled milk from one place to another over a long distance.</p> <p>The inner shell in S.S. AISI 304, 2mm thick.</p> <p>Inner Dish ends in S.S. AISI 304 2mm thick duly pressed and elliptical in shape. Adequate number of stiffening rings made from M.S. Channel will be given on inner shell along with asbestos cloth.</p> <p>Outer shell &amp; Dish ends will be fabricated from S.S.304 Sheet of 2mm thick.</p> <p><b>The inner S.S. shell will be thermally insulated with 100mm Puff Insulation having density 35kg/m<sup>3</sup>.</b></p> <p>The complete inner shell will be mounted on M.S. Cradle of 3mm &amp; M.S. runner of 4mm thick &amp; adequate slope will be given towards the outlet pipe for free drainage of milk also provision will be made for fixing barrel on the chassis with the help of the U bolt.</p> <p>All inner surface and welding joint will be finish and polish up to 150 grits. And all M.S. surface will be painted with 2 coats of anticorrosive epoxy primer and paint.</p> <p><b>Accessories fitted.</b></p> <ol style="list-style-type: none"> <li>1. 4 Nos. S.S.304 outlet pipe size 51mm with 2way S.S. 304 butterfly valve. One end flange &amp; outer and Blank Nut.</li> <li>2. 4 Nos. S.S. 304 manhole with insulated cover &amp; gasket, air &amp; vacuum release valve, S.S. dust cover with S.S. platform bed.</li> <li>3. S.S. top railing made from 25mm dia. S.S. pipe.</li> <li>4. Rear S.S. ladder made from 25mm dia. S.S.pipe.</li> <li>5. S.S. Top cat walkway with S.S. Dimpled plate.</li> <li>6. S.S. side scurting on both the sides of the barrel.</li> <li>7. S.S. Rear platform along with Dimpled plate &amp; M.S. bumper.</li> <li>8. S.S. valve box with cover to accommodate outlet valve.</li> <li>9. S.S. mudguard for rear.</li> </ol> <p>Note: In case of Double compartment tanker there will be Double separate S.S. barrel with individual dish ends and insulation between Double barrel.</p>	6 KL	1 No.

2.	<p><b>D.G. SET:</b></p> <p><b>Functional Requirements:</b></p> <p><b>General Description:</b> The D.G. Set would be used to generate 3 Phase, AC Electricity at 415 volts and 50 Hz. The generating set would be used in the plant to operate certain essential motors in case of power shut down / failure from the main source.</p> <p><b>Capacity:</b> 63 KVA at 0.8 power factor.</p> <p><b>Design Requirements:</b></p> <p>The diesel generating set should comprise of diesel engine and alternator of 63 KVA capacity.</p> <p>The diesel engine should be capable of developing required BHP to match with the alternator of 63 KVA capacity. The engine should be designed for continuous running for 24 hrs. with the overload capacity of 10% for a period of 1 hr. in any 12 hrs. running.</p> <p>The diesel engine should be complete with the following accessories:-</p> <ol style="list-style-type: none"> <li>1. Fly wheel</li> <li>2. Fly wheel housing</li> <li>3. Inlet manifold</li> <li>4. Oil bath air cleaner</li> <li>5. Gear type lubricating oil pump</li> <li>6. Lubricating oil cooler</li> <li>7. Micobose fuel injection system with injection pump, nozzles and mechanical class A-1 type governor.</li> <li>8. Fuel filters double bowl type.</li> <li>9. Exhaust manifold.</li> <li>10. 600mm long flexible exhaust fitting.</li> <li>11. Turbo charger.</li> <li>12. 2 × 12V electric starting arrangement consisting of starter gear ring, starter motor.</li> <li>13. 2 × 12V, 180AH dry charged battery with leads.</li> <li>14. Engine panel consisting of lube oil pressure gauge, water temp, gauge, start/stop button.</li> <li>15. Engine protection unit for low lubricant oil pressure, high water temp. with hooters.</li> <li>16. Cooling system with radiator, fan for radiator, fresh water pump.</li> <li>17. Tacho cum hour meter.</li> <li>18. H.D. absorption type silencer.</li> <li>19. Fuel pipes 2 nos. 1.5m long.</li> <li>20. 100-150 ltrs. Fuel tank.</li> <li>21. Set of std. tools and tackles.</li> <li>22. Change over switch of 630A with 3.5 core × 400 mm<sup>2</sup> cable.</li> </ol> <p><b>ALTERNATOR:</b></p> <p>KEC/Stamford alternator developing 250 KVA at 0.8 p.f. 415V, 50 Hz, 3 phase while operating at 1500 rpm as per IS 4722:1968 as per following specification-</p> <p>Normal Rating : 250 KVA at 0.8 power factor.</p> <p>Voltage : 415V</p> <p>Voltage regulation :±2%</p>	63 KVA	1 No.
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**PROCESS GUARANTEE :**

The Effluent Treatment Plant shall treat 416 Lit / hr. of effluent with following characteristics , provided the plant is operated as per the operating instructions given by us.

**Treated Effluent Characteristics :**

Parameter	Unit	Value
PH	-	7.0 to 8.0
COD	mg /lt.	<250
BOD @ 27 ° C	mg /lt.	< 100
Oil & Fat	mg /lt.	<10

**END USES OF TREATED EFFLUENT**

- a. Irrigation
- b. Gardening

**PROCESS DESIGN**

The process design involves Physical and Biological processes.

**PHYSICAL PROCESS**

Collection, Equalization, Mixing, Clarification, Filtration, Drying.

**BIOLOGICAL PROCESS**

Converting organic pollutant into harmless by-products with the help of Aerobic Microorganisms.

**UNITS & EQUIPMENTS****I) MECHANICAL UNITS /EQUIPMENTS**

Sr. No.	Particulars	Quantity
1.	Effluent feed pump	One No.
2.	Air Blower	One No.
3.	Diffusers & Air Purgin Grid	Lot
4.	FAB Media	Lot
5.	Tube Deck media	Lot
6.	Bio Sludge recycling pump	One No.
7.	Pressure Pump	One No.
8.	Pressure sand filter	One No.
9.	Activated carbon filter	One No.

## II) PIPING & FITTINGS

Sr. No.	Particulars	Quantity
1.	Interconnecting Piping between all proposed STP units within battery limits with all necessary Valves & other fittings.	Lot

Sr.No.	Particulars	Quantity
1	Electrical Control Panel Board	One No.
2	Electrical cabling from control panel to units of Effluent treatment plant	Lot
3.	ETP Earthing	Lot

## MECHANICAL UNITS

### I) EFFLUENT TRANSFER PUMP

Application	:	Effluent Feed to YASH PETP10 Reactor
Location	:	At Collection Tank
Type	:	Submerged
Capacity	:	1.0 M <sup>3</sup> / Hr x 10 M Head
Drive	:	1.0 HP
Pump Make	:	Texmo/Kirloskar/equivalent

### II) AIR BLOWER

Medium Handled	:	Air
Make	:	AIRVAC /KPT/Equivalent
Air Flow	:	40 M <sup>3</sup> /hr.
Delivery Pressure	:	0.40 kg/cm <sup>2</sup>
Duty	:	Continuous
Motor HP	:	2.0
Motor Make	:	Crompton/Kirloskar / Equivalent
Accessories	:	All accessories as per requirement
Location	:	Near ETP Reactor
Application	:	Supply of Air for aeration in YASH PETP-10 Reactor
Quantity	:	One No.

### III) DIFFUSERS & AIR PURGING GRID

Type	:	Membrane type air diffuser
Make	:	Proflex/Equivalent
MOC	:	Silicon Membrane
Location	:	At YASH ETP10 Reactor
Size	:	63mm OD x 1000 mm length
Distribution	:	Air distribution channel extending over the effective length guarantees an even distribution of air.
Quantity	:	Lot

**IV) RANDOM MEDIA-FAB**

Application	:	For bacterial attachment
Make	:	Tecpro/Equivalent
MOC	:	PP
Location	:	At FAB Reactor
Specific surface area	:	250 M <sup>2</sup> /M <sup>3</sup>
Quantity	:	Lot

**V) TUBE SETTLERS**

Application	:	<b>To increase the surface area and to provide faster efficient settling</b>
SOR	:	<b>3.0 M<sup>3</sup>/M<sup>2</sup>/Hr</b>
Angle	:	<b>60 degree</b>
Vertical Height	:	<b>700 MM</b>
Location	:	Settling tank
Scope	:	Supply erection and testing
Make	:	Tecpro/Equivalent
Quantity	:	Lot.

**VI) BIOSLUDGE RECYCLING PUMP**

Application	:	Sludge recycling to FAB
Type	:	Monoblock, Three Phase
Capacity	:	1.0 M <sup>3</sup> /Hr Head 30mtr.
Drive	:	1HP
Pump Make	:	Crompton/Kirloskar /Equivalent
MOC	:	CI
Quantity	:	One No.

**VII) PRESSURE PUMP**

Application	:	Feed to Dual Media filter
Type	:	Monoblock, Three Phase
Capacity	:	1.5 M <sup>3</sup> /Hr Head 30mtr.
Drive	:	1.0HP
Pump Make	:	Texmo / Equivalent
MOC	:	CI

**VIII) DUAL MEDIA FILTER**

Application	:	For removing Residual solids
Type	:	Cylindrical, Vertical
Capacity	:	3.5 M <sup>3</sup> /Hr
MOC	:	FRP
Pressure	:	1.5 Kg/Cm <sup>2</sup>
Media	:	Sand
Make	:	YASH
Quantity	:	One No.

**IX) ACTIVATED CARBON FILTER**

Application	:	For removing Residual solids
Type	:	Cylindrical, Vertical
Capacity	:	3.5 M <sup>3</sup> /Hr
MOC	:	FRP

Pressure : 1.5Kg/Cm<sup>2</sup>  
 Media : carbon  
 Make : YASH  
 Quantity : OneNo.

**C. PIPING & FITTINGS**

Application : Interconnecting Piping between all ETP units  
 Location : ETP Plant Battery limits  
 Accessories : Valves, Flanges, Reducers, Joints, Bendsets.  
 MOC : PVC/Upvc  
 Make : ISI Make

**ELECTRICAL WORKS**

**I) CONTROL PANEL**

Motor Control Centre (MCC) is to be fabricated in 14 swg / 16 swg CRCA sheet with non compartmental type, dust & vermin proof wall mounting.

Quantity : One No.

**II) CABLING (Underground trenches)**

Electrical cabling from control panel to units of Sewage treatment plant

The cables shall be ISI make Copper ( 1.5 & 2.5 sq.mm) aluminum (above 2.5 sq.mm) conductor armored . The entire cable shall be supplied capacity wise for all motors /units.

Quantity : One lot.

**ELECTRIC LOAD LIST**

SR.NO.	EQUIPMENTS	QTY. WORKING	HP LOAD EACH
1	Effluent feed Pump	One No.	1.0
2	Air Blower	One No.	2.0
3	Bio-sludge pump	One No.	1.0
4	Pressure pump	One No.	1.0

**Workingload : 5.0 HP (3.73 KW)**  
**(Some motors run partially)**

**PERFORMANCE ON THE BASIS OF COD & BOD**

**RAW SEWAGE CHARACTERISTICS**

PARAMETER	UNIT	VALUE
COD	Mg/lit.	1000
BOD	Mg/lit.	800

**TREATED SEWAGE CHARACTERISTICS**

PARAMETER	UNIT	VALUE
COD	Mg/lit.	< 250
BOD	Mg/lit.	< 100

**Milk Testing Equipment:-**

Sl. No.	Description	Capacity	Qty.
1.	a) Gerber method: - With centrifuge, glass wires, Chemicals		40
	b) Milk analyser :- With complete set of automatic testing of milk along with solar power backup.		04
	c) Testing of Milk, Acidity, MBRT, Alcohol and detergent etc.		04sets
	d) Alumunimun alloy can food grade	40 ltrs. 20 ltrs.	400 100
2.	BULK COOLERS for collection of milk:- Specification-Delta milk cooling tank open top ,washing is done manually inside the tanks.The automatic cooling control panel.It has rounded internal corners to facilitate thorough cleaning.Tank insulation is provided by factory injected polyurethane foam of 50 mm.The integral condensing unit is hermetic type with R..22 refrigerant...In case power failure one applicable rated capacity to be provided.This item would be installed at villages shall be sustainable in the village situation.	2000 ltrs	02

**2. NAME OF WORK: SUPPLY AND ERECTION OF MACHINERY FOR VERMIN COMPOST UNIT**

Sl. No.	Equipment	Description	Qty.
1	Screw press Dewatering system	Motor: max 5 Hp Electrical type: 3 Ph Capacity: 1000 to 1200 liters per hour Shaft, screw, screen and other body part: make by SS-304 (fully SS)	1 Set

		Suction pump: 2HP Luby make suction pump Control panel: NON-PLC control panel	
2	Tractor	Mahindra, Tractor, Loader	1 set
3	Shredder cum pulverizer	Power requirement: Tractor PTO 40 hp & above RPM 540 Weight Minimum 500 kgs Output: 2800 Kgs No of blades: 48 pulverizing blades	1 set
4	Ribbon Blender machine	Blender Dia: 1000 mm Length of blender:1500 mm Height of blender: 1200mm Geared motor: Max 8. Hp Conveying capacity: Minimum 0.5 TPH Bearing UCP209: UCP 210 make-NRB/SKF MOC: Stainless Steel (ss-304)	1 Nos assembly
5	Rotary Screen	Trommel: Dia 800mm/Length- 1500 mm Geared Motor: max 2 Hp Conveying capacity: Minimum 0.3 TPH Perforated sheet: Hole Dia 5mm 3mm thk MOC: Mild Steel (MS IS 2062)	1 Nos assembly

**3. NAME OF WORK: SUPPLY AND ERECTION OF MACHINERY FOR BIOGAS PLANT FOR THERMAL APPLICATION BASED ON CATTLE DUNG FOR GENERATION OF GREEN ENERGY**

Sl. No.	Equipment	Description	Qty.
1	Mixer for cow dung	03 Hp motor, 15 RPM reduction gear box	1 set
2	Moisture trap	MSEP/ suitable for feed	2 nos
3	Feed pump	Type: Submersible slurry pump, Capacity: 5-10 m3/hr MOC: Body SS Impellor cast Iron Motor: 2 to 3 Hp	2 nos
	Bio gas balloon along with safety release arrangement and accessories	Capacity 50 m3 MOC: reinforces PVC rubber with 950-1050 GSM thickness	1 no
4	H2S scrubber	Two tanks with necessary media, MS FRP	1 set
5	Biogas engine	13 KVA/10KW- with canopy, KOEL make	1 set
6	Flame arrestor	Suitable as per line size	1 no

7	Biogas flare	10cum/hr- MS, size suitable as per gas flow	1 no
8	Change over switch , energy meter	Suitable as per engine and MNRE requirement	1 set
9	Piping	Fliexible PVC, UPCV, HDPE	50m
10	Biogas flow meter	Suitable as MNRE guide lines	1 no

4. Name **OF WORK: SUPPLY OF HYDORPONIC GREEN FODDER MACHINE**

<b>Sl. No.</b>	<b>Name of the machine</b>	<b>Description</b>	<b>Qty.</b>
1	Hydroponic green fodder machine	Capacity- Range 100 to 150 Kgs Power- maximum 3 hp motor Material: Plastic	15 set

**TENDER FORM (Supply, Installation, testing, commissioning and trial running of the machinery and equipment for Common Facility center (CFC) for Maa durgadevi producer company Ltd (SPV)**

Tender Form issued to : \_\_\_\_\_

Date of issue of tender form :- \_\_\_\_\_

**(Digital signature)**  
**Signature of issuing authority**

**Financial Bid**

S.No	Supply of specified items	Amount Quoted (item wise)
1	<ol style="list-style-type: none"><li>1. The amount should be quoted <b>item wise</b> as per above specifications</li><li>2. The price quoted should be inclusive of <b>taxes, freight, erection, installation &amp; one week training charges</b> if any.</li><li>3. Three months operational support</li><li>4. Two years warranty with spares</li></ol>	

**Place :**

**Date :**

Signature of the authorized person  
Name:  
Designation:  
Name of firm & address:  
Phone /Mobile No. :  
Seal of the firm: