M-28, Marigold,
Krishnakeval Township,
Kondhwa Khurd,
Pune-411 048. INDIA
Tel / Fax: +91 20 26831210 / +91 9422002758
Email: enconengineer@yahoo.co.in / encon_pune@yhoo.co.in

ENCON
Consulting Engineers

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ANNEXURE-V

Sl No.	Item	Description	Qty No / Set .	Value US $	Total Value US $
A) Milk Collection Center Capacity 3,000 Ltrs per Day.			**5 Set**	**26,935**	**1,34,674**
1	Can Tipping Bar	Can tipping bar suitable to tipping the can and pour the milk into Dump Tank bowl. The can seating portion is of nylon to prevent the can getting damaged. The Can Tipping Bar is made from SS Square pipe with SS foundation plate & Nylon seat for cans and is mounted on the SS legs.	1 No.		
2	Digital Weighing Scale - 300 Kg	Electronic Platform type digital weighing scale is suitable for measuring weight in containers. This weighing scale will have load cells under the bottom frame taking load of Milk Cans. In this unit will display the weight in KG as per the scale. The accuracy of the scale is 100 grams. The unit will have four nos of legs to support the scale Control panel in plastics to accommodate display Unit Interface System	1 No.		
3	Dump Tank (with cover & strainer Box) - 1,000 liters	To feed constant milk to chiller or pasteurizer. The dump tank will be in a rectangular dimensional where it will be fabricated out of 2mm thick SS AISI 304 sheet, also the surfaces will be polished to 150 grit as per dairy standards and welded joints are passed through D.P. test. The connections size for CIP inlet, milk return and milk outlet is 38mm. It will have a top cover with lifting handle and a gentle 3 way slope towards the outlet which will be terminated at a two way valve. The tank will be mounted on SS 304 adjustable ball feet .	1 No.		
4	Milk Transfer Pump - Capacity: 5,000 LPH	The raw milk transfer pump 1 HP will be of sanitary design as per the international and dairy standards. Material used for manufacturing the pump body is SS 304 and impeller SS 316 where milk will be in the contact. The motor will operate under 400 / 40volts, 50 cycles per second, 3 phases,	1 Nos.		

		AC supply. The make of the motor will be of reputed manufacturer like ABB/Crompton/Siemens. The shroud, casing and other parts of the pump assembly will be of glass bit blasting so that it can prevent from corrosion as well as will give an aesthetic appearance to the pump.			
5	Milk Inline Filter	Tubular Perforated filter for continuously filtering the milk. The filter will be fabricated out of SS 304 pipe, the filter drum and mesh will be removal for quick cleaning. Inlet 38mm, outlet 38mm. This will be a filter in pipe type strainer with SMS union connections.	2 Nos.		
6	Cooling Tank - 3,000 Liters	HORIZONTAL TANK, SINGLE PHASE, AS PER ISO 5708, CLASS 2AII, WITH CDU . • Material of Construction Shall be Stainless steel 304 with certificate. • Isolation with foam and externally with SS 304 covers no open for water penetration. • Cooling capacity 30 Deg C to 3 Deg Celsius 2,500 liters within 3 hours. • Refrigeration Gas shall be Freon R 404 (Environmental friendly refrigeration gas.) • Vertical Cylindrical Open Top Type complete with condensing (Sealed Compressor) & Control unit. • Compressor & Refrigeration Accessories shall be from approved vendors like Danffos, Immersion or Copland. • Each unit shall be filled with R22 Refrigerant and tested for cooling & after that refrigerant shall be transferred to condensing unit before dismantling for shipment. (Any refill charge or top up required prior to commissioning at site, this will be the responsibility of the Encon) • Air cooled Condensing unit shall have all necessary safety interlock & Size of its all components including compressor should be as per approved heat load. • Design of cooling tanks should be as per ISO-5708 specifications. • Heat Load Calculations must be submitted with the offer as per ISO-5708 class 2 A II. • Surface finish External Buff 2B Finish Internal wetted parts 2B Finish • Tank shall be calibrated with anodized marking on inner side of the tank. • Open Lid safety switch for agitator shall be provided • Control unit shall be with standard Electrical components without Proprietary electronics controls. • The Electrical panel shall have all safety interlock, Audio visual alarm & emergency STOP switch.	1 Nos.		

		• Also over load protection for power surge & reverse direction shall be a part of control panel. • Power supply available at site 220 V + 10% x Three Phase x 50 Hz + 6%; combined variation shall be less than 10% • Accessories Comprising of 1. Outlet Butterfly Valve With chained End Cap. 2. Tank Cleaning Brush, 3. ”S” Spanner, 4. Adjustable four legs & Foundation Plates			
7	SS Tank 200 Ltrs.	SS Tank 200 Ltrs. non insulated with statinless steeel coil for heating water by water circulated from the hot water boiler. Fitted with dial thermometer	1 No.		
8	SS pipes, fittings and valves	All inter-connecting pipes and fittings with necessary accessories such as valves will be as per ISO standards with MOC of SS AISI 304	1 Lot		
9	Can Scrubber (rotary type)	Can Scrubber is used for scrubbing empty milk can of 40 Ltrs. capacity with the help of rotating and side brushes. The can scrubber will be fabricated from SS AISI-304 quality sheet and the surfaces will be polished to 150 grit. The scrubber will be complete with two nylon brushes, to clean both the inside and outside of the cans. The brushes will be driven by a motor which will be coupled to reduction gearbox and trough thickness of 2mm also drain outlet of 1” ball valve . Drive is as follows 3 ph. 415 volts, 50 Hz, IP-55, “F”. (B-5-B-5) with motor of 0.75/1, make Siemens and 3 way slope for free & complete drainage of liquid.	2 Lot		
10	Stainless Steel Milk Collection Accessories	Milk Collection Center Kit comprising of Measuring Set, Cans, Plunger, Bucket, Sampler, Sampler Bottle with Stand, Adulteration Test Kit, also milko tester for FAT and SNF Testing. Solar Heater with electrical Backup for generating Hot water for equipments cleaning.	1 Lot.		
B). ROAD MILK TANKER			**3 NOS.**	**12,427**	**37,280**
1	5,000 L Insulated Horizontal Holding Tank Road Milk Tanker (RMT) with 20 mt food grade hose pipe.	Specifications & Description Considered as under. Item offered is, Truck Chasis mounted Road Milk Tanker (RMT). Capacity 5,000 Ltrs. Two compartments each having 2,500 Ltrs capacity with separate outlet & Manholes. RMT is fitted with vaccum braker to avoid damage to inner Tank during offloading of milk and CIP. RMT Puff insulated with SS inner and outer fabricated from	3 Nos.		

		2 mm thick 304 SS material. Suitable logo and company name as given to be printed on the Tank.			
C). MILK RECEPTION AT MAIN DAIRY PLANT			**1 SET**	**68,937**	**68,937**
1	Can Tipping Bar	Can tipping bar suitable to tipping the can and pour the milk into weigh bowl. The can seating portion is of nylon to prevent the can getting damaged. The Can Tipping Bar is made from SS Square pipe with SS foundation plate & Nylon seat for cans and is mounted on the SS legs.	1 No.		
2	Digital Weighing Scale - 300 Kg	Electronic Platform type digital weighing scale is suitable for weighing milk in containers. This weighing scale will have load cells under the bottom frame taking load of Milk Cans. In this unit will display the weight in KG as per the scale. The accuracy of the scale is 100 grams. The unit will have four nos of legs to support the scale Control panel in plastics to accommodate display Unit Interface System	1 No.		
3	Dump Tank (with cover & strainer Box) - 1,000 liters	To feed constant milk to chiller or pasteurizer. The dump tank will be in a rectangular dimensional where it will be fabricated out of 2mm thick SS AISI 304 sheet, also the surfaces will be polished to 150 grit as per dairy standards and welded joints are passed through D.P. test. The connections size for CIP inlet, milk return and milk outlet is 38mm. It will have a top cover with lifting handle and a gentle 3 way slope towards the outlet which will be terminated at a two way valve. The tank will be mounted on SS 304 legs with adjustable ball feet .	1 No.		
4	Raw Milk chiller	To rechill milk received from the collection center.	1 No.		
5	Milk Transfer Pump - Capacity: 5,000 LPH	The raw milk transfer pump 1 HP will be of sanitary design as per the international and dairy standards. Material used for manufacturing the pump body is SS 304 and impeller SS 316 where milk will be in the contact. The motor will operate under 400 / 40volts, 50 cycles per second, 3 phases, AC supply. The make of the motor will be of reputed manufacturer like ABB/Crompton/Siemens. The shroud, casing and other parts of the pump assembly will be of glass bit blasting so that it can prevent from corrosion as well as will give an aesthetic appearance to the pump.	1 No.		
6	Milk Inline Filter	Tubular Perforated filter for continuously filtering the milk. The filter will be fabricated out of SS 304 pipe, the filter drum and mesh will be removal for quick cleaning. Inlet 38mm, outlet 38mm. This will be a filter in pipe type	2 Nos.		

		strainer with SMS union connections.			
7+	Hot water Wash point	Y shaped water / steam mixing assembly for getting hot water as required the unit will have water and steam inlet with valve and non return valve. The mixing chamber will be at the bottom of adequate diameter. Completely made out in SS castings.	1 No.		
7	SS pipes, fittings and valves	All inter-connecting pipes and fittings with necessary accessories such as valves will be as per ISO standards with MOC of SS AISI 304	1 Lot		
8	Can Scrubber (rotary type)	Can Scrubber is used for scrubbing empty milk can of 40 Ltrs. capacity with the help of rotating and side brushes. The can scrubber will be fabricated from SS AISI-304 quality sheet and the surfaces will be polished to 150 grit. The scrubber will be complete with two nylon brushes, to clean both the inside and outside of the cans. The brushes will be driven by a motor which will be coupled to reduction gearbox and trough thickness of 2mm also drain outlet of 1" ball valve . Drive is as follows 3 ph. 415 volts, 50 Hz, IP-55, "F". (B-5-B-5) with motor of 0.75/1, make Siemens and 3 way slope for free & complete drainage of liquid.	2 Nos.		
9	Stainless Steel Milk Collection Accessories	Main Dairy Kit comprising of Measuring Set, Cans, Plunger, Bucket, Sampler, Sampler Bottle with Stand, Adulteration Test Kit and Lactoscan.	1 Lot.		
10	Magnetic Flow Meter	For quick discharge of raw milk at milk reception point at dairy plant. Inline magnetic Flow meter. SS inner outer with highly stable electronic circuit. This is an optional item.	1 No.		
11	Raw Milk Storage tank 5,000 Liters	The RMST is a vertical tank whose function is to store chilled milk at 4 deg. C temperature. Double compartment vertical, outer made up of SS 2.0 mm sheet and inner of 2.0 mm SS 304 complete The tank surfaces is polished by150 grit and M.S stiffeners are painted by providing insulated padding between the inner SS shell and stiffeners for metal contact. While stiffeners are used between the inner, outer shells and supporting structure. Slope of 1:15 slope towards outlet free & complete drainage. The tank is suitable for outside installation and the accessories mounted on top will be weather proof. The radius of all welded and permanent attachment joints will be at least 6mm.Vertical heavy duty sweeping type SS (AISI 304) agitator complete with mountings, gear box & motor capacity: 2HP also the motor will be of a reputed make like Crompton/ Bonfiglioli/ Kirloskar/REMI. Man-way of 550 x 405 insulated SS door with tightening and locking device. The gasket will be of neoprene or nitrite	3 Nos.		

		rubber of food grade quality. Sight glass with toughened glass. Light glass with toughened glass & lampshade. The inner SS shell will be thermally insulated with 100mm thick thermo-Cole insulation. The lugs are provided on the top with 12mm thick SS (AISI 304) for lifting. Thermo-well of 300 mm long SS inclined pocket for mounting with digital temperature indicator. Drain hole at lowest point is provided. C.I.P 1 nos. 38mm at top centre of the conical dish with spray ball of removable type for cleaning the device. To access the sight glass & geared motor assembly ladder is provided. Level marking is provided for level indicator.			
12	SS pipelines and powder reconstitution and butter recombination & butter dosing system with Funnel, Platform, Ladderm Etc. - 5000 LPH	The powder blender shall be blending of wet and dry ingredients into a fluid stream using shear pump. Dry Ingredient capacity : upto 1 Tons per hour (40nos of 25 kg bags) Mixing Medium : water at ambient temperature QTY: 1 No. Positive displacement pump for pumping melted butter in the system for reconstitution of skimmed milk powder. Application: To Create Partial Vaccum at pump suction to remove the air from suction line. Pump: S.S. Sanitary Pump Construction: Horizontal mono-block & coupling Shaft Pump Mounting Base mounted Suction & Discharge: 63 mm x 63 mm SMS connection Material of construction: AISI-304 Secondary Parts: Nitrile food grade quality Seal Type: Single Mechanical shaft seal dia 35 mm Seal Face: TC v/s C (Tungsten Carbide face v/s Carbon Face) Motor Make: ABB/CROMPTON/SIEMENS Drive Details: 3 phase 415 volts, 50 Hz, IP-55, “F”. (B-5) Motor kw/hp/rpm: 3.75 /5HP/ 1440 2.0) Shear Pump: QTY: 1 No. Application: To Mix & Shear the SMP Pump: Sanitary design , shear pump Pump Construction: Horizontal mono-block & coupling Shaft Pump Mounting Base mounted Suction & Discharge: 63 mm x 51 mm Impeller: Rotor Stator Connection: SMS STD MOC: AISI-304 Secondary Parts: Nitrile food grade quality Seal Type: Single Mechanical shaft seal dia 22mm	1 No.		

		Seal Face: TC v/s C (Tungsten Carbide face v/s Carbon Face) Motor Make: ABB/CROMPTON/SIEMENS Drive Details: 3 ph. 415 volts, 50 Hz, IP-55, “F”. (B-5) Motor Kw/HP/Rpm: 3.75 / 5 HP / 2900 Funnel: The function is to pour the SMP in to the funnel The SS surfaces will be polished to 150 grit The capacity is 50 Ltrs with conical venture design having platform type. The cone angle is 60 deg. and sheet material AISI-304 quality with 2mm thickness and outlet 51mm SMS STD having support of 3 legs & ball feet with vertical adjustment of 50 mm. It will consist of manually operated two way butterfly valve of 51mm for powder and liquid so that pressure and flow can be maintained. Make ALFA LAVAL, MOC SS AISI 304 The pipelines and fittings will be of SS 304 quality of 51mm size which will connect to the tank and pumps which will mount on skid.			
D). MILK PROCESSING SECTION			**1 SET**	**1,14,232**	**1,14,232**
14	Milk HTST Pasteurizer Fully Auto FDV 3000 LPH	It will be used for pasteurization milk & Yoghurt milk subsequently chilling it . The milk temperature program 6-45-65-80/90/45-4 on whole milk operation. Heating is by hot water at 83 deg. C and chilling is by chilled water at 1.5 deg. C. The plates of all the regeneration, heating and chilling section are in AISI 304. Regeneration efficiency will be 90% on whole milk operation. Its a dual programming unit where both 4deg.C and 45deg.C milk can be feeded also FDV is connected for flow diversion. Design Parameters: Capacity: 2000 LPH Milk temp. Program-I 30–45–65–74-80/90/–67.6-55-35-4ºC Milk temp. Program -II 6–45–65–72.4–80/90–67.6–52.6–11.5–4 ºC Raw Milk Feed Temp. 4/30 ºC Milk Separator temp. 40 - 45 ºC Milk Homogenizer temp. 60 - 65 ºC Milk Pasteurization temp. 78/80 ºC Final Milk outlet temp. 4ºC Regeneration Efficiency 90% The holding section will be of 51mm diameter SS piping suitable for holding tank of 30 Sec. or 3/5 Min. as	1 No.		

	Scope of Supply for MILK HTST Pasteurizer 2000 LPH	required. Section Reg. III, Heating & Chilling Pressure Drop Chilled Water 1.0 Kg/cm2/10 MWC Pressure Drop Hot Water 1.0 Kg/cm2/10 MWC Product service side 51 mm SMS Gaskets Nitrile food grade quality Plate Material AISI-304 (Chiller section AISI-316) Each Plate H.T.A. 0.85mm Test Pressure 6 kg/cm2 (g) Frame & pressure plate Mild steel cladded with AISI-304 Interconnecting box Mild steel cladded with AISI-304 Tightening bolt Manual tightening bolt AISI-304 Support stand Self-supporting AISI-304 Type Of Test Hydraulic test & Water circulation Inlets/outlets Product & Service side Thermo well Pockets for thermometer Ball feet Adjustable ball feet **Float Balance Tank - 100 Lit. - 1 No.** The float balance tank is to maintain the constant milk to pasteurizer and it will be fabricated from 2 mm thick stainless steel sheet conforming to AISI 304. The tank will be of welded construction and all the welds will be ground smooth. The tank will be provided with cover, mechanical float valve, inlet and outlet of 38 mm SMS connection for milk. **Milk Feed Pump – 3 / 5,000 LPH - 1 No.** The centrifugal feed pump is to feed the milk to pasteurizer with 3.0 HP motor. All parts are of stainless steel AISI 304 while impeller will be of AISI 316.The suction and discharge is of 51mm x 38mm.The make of the motor will be of reputed manufacturer like ABB/Crompton/Siemens. The shroud, casing and other parts of the pump assembly will be of glass bit blasting so that it can prevent from corrosion as well as will give an aesthetic apperance to the pump. The motor is suitable for operation on 400/440 volts, 50 cycles per second, 3 phases, AC supply. **Flow Control Valve - 3,000 LPH - 1 No.** Flow Control Valve will be supplied through which the required flow will be			

		maintained, it is of sanitary design conforming to dairy standard to automatically maintain the required flow rate under varying pressure conditions and also to act as a non-return valve. The size of the connections is 38 mm. **Plate Heat Exchanger: 1 No.** 3Kl expandable to 5 klph. It is designed for pasteurization of milk & subsequently chilling it as per the dual programming system where milk can enter at 4ºC or 30ºC where the temperature program is mentioned above. The product consistency of Milk- 4.5% Fat and 8.50% to 9.5% SNF. The frame and pressure plates of unit are mild steel cladded with stainless steel. All the finish of stainless steel surfaces will be polished to 150 grit. The unit is provided with adjustable ball feet. The plate heat exchanger is complete with: SS pockets in PHE connections with protective casing mounting thermometers - 5 nos. Spanner for tightening nut - 1 no. 'C' spanner for unions - 1 no. **Over Head Type Tubular Holding Tube: 1 No.** The function is to holding milk at pasteurization temperature for 20 seconds with a volume of 16.67 liters having a tube size of 51mm O.D. and length 9.29meter which is skid mounted with protecting cover. The holding section should have additional pipe length to accommodate holding of yoghurt milk for 3 to 5 Min with separate take off connections with valve. **Automatic Flow Diversion Valve - 1 No.** Whenever hot milk temperature goes below pre set value, a solenoid valve supplying air to FDV actuates and the flow of milk is diverted back into the float balance tank. Pneumatic operate valve with 38 mm, SMS connection, AISI-304 with a compressed air of 2.5 Kg/cm.2. at the inlet of air pressure regulator. **Drain Funnel with Valve: 1 No.** Drain funnel will be provided for draining the flushing of milk and CIP to avoid messy operation. The funnel will be fabricated from 2mm thick stainless steel sheet confirming to AISI 304. **Hot Water System: 1 set** one hot water heating unit comprising of the following: Steam will be used to generating hot water for the temperature rise. The heating device will be			

		complete with, manifold and Safety device MOC is AISI 304 constructions. It also consist of hot water circulation pump in sanitary design complete with 2 HP motor having single mechanical seal shaft and seal face of TC/TC - 1no. Auto steam flow control valve. size 1/2"' – over flow discharge duly terminated to near floor level and safety pressure relief valve also Float Steam trap 1/2”. **Temperature Indicator -** Digital type for displaying the pasteurization temperature in the heating linked to a PID loop for activating flow diversion valve in case of a default in heating section temperature . Control panel: The panel is made of AISI 304 grade sheet with 2mm thickness mounted on skid having controls for motors and processing program with remote motor controls of milk pumps, hot water pump, chilled water pump etc also the alarm type audio visual is mounted on the panel (Make:Siemens) • Design of system will be PID controls: Make erutherm • Relays, timers, solenoid valves and toggle switches etc. • Electro pneumatic converter: 2 No Steam/Chilled water Control valve: Belofram • Solenoid valves, level controllers, steam controllers, etc will operate on 24 V DC/AC supply. • Power supply unit with step down transformer to convert 415 V to 24 V for • Provision for auto and manual operation. In case of manual operation Pneumatics fitting, air filter, regulator, pressure gauge, air tubing.			
2	Homogenizer 3,000 LPH	Capacity : 3,000 LPH The supply includes - High pressure Milk homogenizer operating at pressure upto 250 bar. All machine parts will be standard make and the fluid end will be off SS 316 grade. The homogenizing assembly will be complete with solid satellite valve, valve seat, forcer and impact ring. The machine will be complete with measuring filled homogenizer pressure gauge 0 to 400 bar.	1 No.		
3	Cream separator (Online) - 3,000 LPH	Hermetic Cream separator with standardize devise suitable for connecting with the pasteurizer at the temperatures of 45 Deg.C. The Machine will have top inlet feed, top skimmed milk and cream outlets under pressure. Suitable Indicators / instrument should be provided to control either full separation or standardization .	1 No.		
4	Milk Transfer	Pasteurized milk transfer pump is used	4 Nos.		

	Pump - 5000 LPH 3HP.	for transferring it to packing machine. It will be of sanitary design as per the international and dairy standards. Material used for manufacturing the pump body is SS 304 and impeller SS 316 where milk will be in the contact. The motor will operate under 400 / 40volts, 50 cycles per second, 3 phases, AC supply. The make of the motor will be of reputed manufacturer like ABB/Crompton/Siemens. The shroud, casing and other parts of the pump assembly will be of glass bit blasting so that it can prevent from corrosion as well as will give an aesthetic apperance to the pump. Flow Capacity: 5000 Liter per hour ,S.S. Sanitary,, , Pump Construction: Horizontal mono-block & coupling Shaft, Leg mounted with adjustable ball feet and shroud. Suction&Discharge: 51mm x 51mm, Connection: SMS STD, Nitrile food grade quality, Seal Type: Single Mechanical shaft seal dia 22mm Seal Face: Cr v/s SS (Carbon face v/s SS Face)			
5	Pasteurised Milk Storage Tank 5,000 Litres	The PMST is a vertical tank whose function is to store pasteurized chilled milk at 4 deg. C temperature. Double walled vertical, outer made up of SS 2.0 mm sheet and inner of 2.0 mm SS 304 complete The tank surfaces is polished by150 grit and M.S stiffeners are painted by providing insulated padding between the inner SS shell and stiffeners for metal contact. While stiffeners are used between the inner, outer shells and supporting structure. Slope of 1:15 slope towards outlet free & complete drainage. The tank is suitable for outside installation and the accessories mounted on top will be weather proof. The radius of all welded and permanent attachment joints will be at least 6mm.Vertical heavy duty sweeping type SS (AISI 304) agitator complete with mountings, gear box & motor capacity: 1HP also the motor will be of a reputed make like Crompton/ Bonfiglioli/ Kirloskar/REMI. Man-way of 550 x 405 insulated SS door with tightening and locking device. The gasket will be of neoprene or nitrite rubber of food grade quality. Sight glass with toughened glass. Light glass with toughened glass & lampshade. The inner SS shell will be thermally insulated with 100mm thick thermo-Cole insulation. The lugs are provided on the top with 12mm thick SS (AISI 304) for lifting. Thermo-well of 300 mm long SS inclined pocket for mounting with digital temperature indicator. Drain hole at lowest point is provided. C.I.P 1 nos. 38mm at top centre of the conical dish	3 Nos.		

		with spray ball of removable type for cleaning the device. To access the sight glass & geared motor assembly ladder is provided. Level marking is provided for level indicator.			
6	SS Pipelines and Fittings	Interconnection of Float balance tank, milk feed pump, Flow regulating valve Pasteurizer Plate pack, filter, Holding tube, cream separator, homogenizer finished pasteurized product outlet and diversion system back to float balance tank will be of sanitary design piping. Piping will be worked out based on compact layout. Sizes will be from 25mm to 51mm fittings in SS AISI-304.	1 Lot.		
E). MILK POLYPACKAGING SECTION			**1 SET**	**57,380**	**57,380**
1	Milk Packing Machine 3,000 PPH	Single Head Pouch Packing Machine 3,000 PPH. The machine is used for packing pasteurized chilled milk. Gravity assisted filling system working under constant head. It can pack milk in 200ml and 500ml and 1000 ml. The dimensions are1545mm(W), 1045mm(D), 2750mm(H) app. Standard Spec. Power: 3 - phase, 415V AC, 50Hz, 4core copper cable + Earth, (Permissible Voltage fluctuations + /- 2%) Cable size : 4 core copper cable, 2.5 mm 2 with servo stabilizer of 220 volts to control they electrical supply Power consumption : 4.0 kw (Peak) Cooling water : 150 liters / hr. (app) Air consumption : 5 m3 / hour Air pressure : 4 Kg/Cm2 Film roll dimension Film Specifications : LDPE 60 microns thick Film Width : 325mm +/- 2mm Pouch Width : 150mm +/- 2mm Roll diameter : 350 mm (app) Optional accessories Date Embossing at Vertical Seal Date batch contact ink coder Print mark scanner with mounting assembly unit Machine Features 1.Output : Up to 3000 Pouches/Hour for 200ml to 500 ml & Up to 5000Pouches/Hour for 1000 ml 2.**Double headed is also available at extra cost where :** Output : Up to 6000 Pouches/Hour for 200ml to 500 ml & 1000 ml • Machine to stop at end of film roll or fault condition • Drive is mechanical lever driven with variable frequency drive to control motor speed • Servo Motor & Drive for film pulling • Touchpad HMI Panel & PLC	2 Nos.		

		• Mechanically operated horizontal seal, vertical seal, paper pulling system, & pneumatically operated filling system • Float mechanism for controlling the level of the product in the machine balanced tank • All product contact parts in SS 304 • Impulse heat-sealing system for Horizontal & Vertical sealing Motorized film - unwinding system for uniform tension of the film during operation. **Note: As per your specification list we have quoted 3000 PPH Two Machine, and Double headed is also available 6000 PPH machine at extra cost**			
2	Pouch Crate Trollies	To carry pouch crates of 10 liters from packing machine station to the cold store window. Alternatively if moving space is limited crate trolleys can also used - each trolley can hold a stack of 10 crates.	4 Nos.		
3	Digital Weighing Scale 5 Kg	Platform type 5 kg balance with digital display.	1 No.		
4	SS tables,	The packing table will be used for collecting milk pouches conveyed through the conveyor. The pouches will be then filled in the crates. The table will be fabricated using all SS 304 material only. The table will be supported on suitable number SS legs (50 mm dia x 3.2mm thick) with SS ball feet with minimum 50 mm adjustment. Cap: 30 liters The tabletop tray will be of minimum 14 SWG AISI 304 sheet.	2 Nos.		
F). BUTTER AND GHEE SECTION			**1 SET**	**17,708**	**17,708**
1	Butter Churner 300 Kgs.	The butter churner function is to feed the cream having a fat content of 40-45% of fat. The chilled water from the IBT of 1.5 Deg.C will spray outer. The capacity is of 300 L where the Shell is made out of SS 304, 6 mm thick while Top Dish of SS 304, 6mm thick and Bottom dish of SS 304, 6mm thick. An Air Relief Valve flange will be provided with 200mm dia. All the surface will be finished with 150 grit polish. The churning barrel and dasher will be fabricated from SS conforming to AISI - 304. The dasher will ensure uniform distribution of salt and moisture during the working phase. All the welded joints will be of 6mm. Gear motor 2 HP/3 HP with 1400 rpm and 415 volts. VFD will be provided for speed ranging from 5 to 30 RPM. The drive arrangement with complete electric motor, push button with indicator and operation in forward and reverse direction.	1 No.		
2	Butter Extruder	Butter Extruder is to be used for forming	1 No.		

		known cross section of butter block which can be packed manually on SS table top.			
3	Butter Trolley with castor wheel 100 kg	Trolley design to hold fresh butter of Capacity: 100 Kgs The butter trolley will be fabricated from SS sheets of AISI 304 quality of 2mm thickness .The trolley will be of welded construction. Welding done by argon arc welding process .All the welds will be ground smooth and will be subject to dye penetrate test .The dye will be tested with water fill up test. All the SS surfaces will be well reduced. The butter trolley will be provided shovel. The trolley will be provided handle and ball caster for free handling.	1 No.		
4	Butter packing table Capacity:6' X 4' X 33'	The SS table will be made from SS304 sheet in 2 mm thickness. This table used during Butter block Packing.	2 Nos.		
5	Ghee Making VAT Capacity 250 Ltrs.	The butter-melting / Ghee Melitingh vat will be used for the melting the butter to make Ghee. Technical Spec.: The VAT will be steam jackated with the rounded bottom and straight sights. The Steam jacket should be capable standing 3 Kg. steam pressure. The surfaces of SS surfaces polish by 150 grit the capacity is of 250 liters, where the Inner Shell: 2mm/ AISI 304 quality, Outer Shell: 2mm / AISI 304 quality. Insulation is of 50mm thk Crown 150 resin bonded fiber glass wool between the outer and intermediates shell. The insulation material will withstand the steam temperature. Cover is removable Stainless steel AISI 304 of 2mm thickness with lifting handles. One steam inlet with stream valve will be provided. Steam pressure and safety valve should be provided in steam jacket. One number float type steam trap should be provide to the steam jacket bottom.. Air Vent of 19mm BSP at the top most of the steam jackets with isolation valve. Thermo well (made from SS conforming to AISI 304) Suitable connection will be provided in the outer shell for fixing electronic digital thermometer to measure the temperature of the product. The portion of the thermo well, which is in the steam jacket, will be insulated with rock wool or equivalent and totally shrouded so that the insulation does not come in contact with steam. A suitable thermometer will be supplied along with the butter melting vat. Side outlet of 51mm dia, valve ending horizontal stainless steel in complete stainless steel union for taking out clear	1 No.		

		ghee. Mild steel legs fitted with stainless steel ball feet provided at bottom of the tank. The SS ball feet will have provision for height adjustment of 50 mm.			
6	Clarification and Packaging of Ghee	1000 Ltrs. capacity Ghee Clarifier for removing fine particles of burns protein and lactos to be provide clear Ghee. Ghee is packed manually in PET JAR in capacity ranging from 100 gms to 1 Kg.	1 No.		
G). FERMENTED MILK			**1 NO.**	**19,417**	**19,417**
1	Steam Heated water Jacketed Batch Pasteurizer Capacity 500 Ltrs. with Packaging Machine	Pasteurize Milk from storage tank is taken into one of the Batch Pasteurizer and heated up to 90 Deg. C. and maintain the temperature for 6 to 9 minutes. There after it is cooled to 45 Deg. C. then culture is added in a limited quantity to pasteurized milk. The inoculated mixed up milk must be packed within 1 to 2 hours failing which milk will blocking the flow off to the packing machine. This Section require 2 Nos. of 500 Ltrs, Tanks, capacity and 1 No. FFs Pouch Packaging Machine.	1 No.		
H). DRINKING YOGHURT SECTION			**1 SET**	**1,14,947**	**1,14,947**
1	Steam Heated water Jacketed Batch Pasteurizer Capacity 1,000 Ltrs. (OPTIONAL CAN BE AVOIDED)	The Milk from main HTST Pasteurizer is stored in on of the Insulated Storage Tank. As required to process milk is taken to 2 Nos. 1,000 Ltrs. Batch Pasteurizer and heated to 90 deg.C from 4deg.C or 45 deg.C. All the finish of stainless steel surfaces will be polished to 150 grit. The unit is provided with adjustable ball feet. The Batch Pasteurizer heat exchanger will be made of SS 304. The gasket material will be food grade rubber and will withstand sterilization temperature of 100 deg.C and 2 % caustic solution at 80 deg.C. Gasket material will be non- toxic, fat resistant, non – absorbent and will be in smooth surface. The product consistency of Milk- 6 % Fat and 9.0% to 9.5% SNF. Plate heater will be supplied with stem type thermometers with SS covers and spanner tools 1 no.	1 No.		
2	Culture Vat for Yogurt (Insulated) 1,000 Ltrs Tank	Capacity : 1,000 Ltrs Construction: Insulated cladded and welded construction of sanitary design. Material of Construction • Inner Shell : SS 316, 3mm thick Cylindrical • Inner bottom : SS 316, 2 mm thick • Outer Shell : SS 304, 2 mm thick • Insulation : 80 mm PUFF. Accessories: • Inlet : No-foam inlet at the top with 38 mm dia. • Outlet : 38 mm dia cup type outlet with	2 Nos.		

		two way plug valve with union • Agitator : SS 316, Slow speed with geared motor • Thermometer : SS stem type (100 mm) dial thermometers. • Legs : 4 Nos. M.S. cladded with SS & adjustable ball feet. Finish: • All M.S. stiffeners will be painted with two coats of epoxy primer • Inside SS surface polished to 150 grits • Outside SS surface polished to 120 grits			
3	Plate Chiller for Yoghurt and Chilled yoghurt storage tank. 2,000 Ltrs.	The yoghurt after setting will be stirred and pumped through plate chiller were the drinking yoghurt will be cooled to 4 to 6 Deg C. Chilled water from the IBT System. The chilled yoghurt storage tank will be double walled and PUF insulation.	1 No.		
4	Yoghurt Cup Filling & Sealing Machine - 2,500 CPH	Capacity: 2,500 cups/hr. Chilled yoghurt will be fade to the packing machine. The machine is fully automatic version machine, with automatic Cup drop, product filling ranges up to 80cc, sealing and cutting of the heat sealable laminate and auto discharge system. The machine construction is fully in Stainless Steel 304 Grade, with the easy CIP system to clean the entire filling system. The controls of the Machine are through and PLC and HMI unit (Touch Screen unit) Mounted in the front of the machine. Technical Specification: Product rate: up to 2,500 cups / hour depending on the product to be filled and the filling range., • The machine body is constructed of stainless steel to meet sanitation standards • Minimum space occupied and easy to operate • Automatic cup falling system (Cups should meet the falling condition) • Automatic filling system • Filling capacity can be adjusted • One 30 Liter balance tank in the machine • Roll form film dispensing system • Automatic sealing system • PLC Control System and Temperature control system • Pneumatic system spare parts: ISO Applied • Material of the molds: Alloy Aluminum • Material of spring and screw: Stainless steel • Additional emergency stop switch for safety protection	2 Nos.		

I).CHEESE CULTURE VAT			**1 No.**	**10,097**	**10,097**
1	Cheese Culture VAT Capacity: 500 Ltrs. (Vertical Triple Wall Dimple Jacket Steam /Hot/Chilled Water)	Function : The cheese vat will be used for Coagulation of Milk Vertical Round. Tripled walled dimple jacket (Steam/Hot/Chilled water circulation) insulated and welded construction sanitary design. Electrical Power : supply at the terminal of control panel Design : Sanitary (Vertical) Finish : SS welding joints will be ground smooth and polished Capacity : 500 Liter (volume of the tank will be such that after filling it up to the rated capacity the level will be at least 100 mm below the line where cylindrical shell). Slope: The bottom will have slope towards outlet for free and complete drainage of liquid. Metal Contact : Insulated padding will be fixed between the inner stainless steel shell and stiffeners. Inner Cylindrical Body: Shell, and top conical dished end Shall be fabricated from 2 mm thk Bottom dished end Shall be fabricated from 2.5 mm thk AISI-304 Intermediate Body: Dimple jacket Shell 1.6 mm thk, SS AISI 304 sheet Outer Cylindrical Body: Shell, Flat bottom and top conical dished end Shall be fabricated from 2 mm thk SS AISI 304 sheet Insulation : The inner SS shell will be thermally insulated withth 75mm thick mineral glass wool compressed to 75m Agitator : It will be in SS (AISI 304) construction complete with geared motor of .5 Hp with variable frequency dive to uniformly mix curd milk in the tank. The agitator shaft will be a rod. Stiffeners : inner, outer shells & supporting structure Inlet Nozzle : No-foam inlet at the top Outlet Nozzle : 76mm Cup type outlet with two-way plug type Drain: At The bottom of the jacket with gunmetal valve. Sampling Cock: Provided on the -outlet with sanitary design. Thermo well Nozzle : ¾” BSP pocket for mounting digital thermometer Conductivity meter : 1 Nos conductivity meter bummer make Lifting Lug: 2 Nos lifting lugs will be provided at top.			

J).UTILITIES SECTION					
J1). STEAM			**1 SET**	**22,523**	**22,523**
1	Steam Boiler Fully Automatic - 600 kg/ hr	Technical Specifications Design: Coil type, reverse flue, forced circulation type Steam (kg/hr) : 600 outlet 100mm, Maximum working pressure : 10.5 kg/cm Safety Valve set pr. : 8 kg/cm, Steam Temperature: 185 deg.C Fuel : HSD, Fuel Calorific Value : 10,000 Kcal/Kg Thermal : 88 Efficiency, Fuel Firing : Automatic Fuel consumption : 36 kg/hr., Burner type : Pressure jet, On/off Overall dimensions(LXBXH): 2500x2500x3000mm Electric Supply : AC,3ph, 415v, 50hz, 4- Wire system. Scope of Supply Boiler One pressure part assembly consisting of closely wound helical vertical coil fabricated out of ERW pipe, One down firing, pressure jet burner assembly, Jacketed design to enclose the pressure part to minimize surface losses Accessories One fuel pump with blower coupled with motor on a special frame, boiler feed pump with relief valve also mounted on the same frame, Specially designed efficiency module comprising of atmospheric economizer and heat optimizer to preheat the water Dust proof, pre wired control panel housing necessary starters, fuses, contractors, relays etc. Piping One feed water line between economiser , feed pump and boiler. Fuel oil line from filter to burner in let Mountings One main steam stop valve • One auxiliary steam bypass valve • One single port spring loaded safety valve • One blow down valve • One drain valve for economiser • One non return valve on feed water line • One solenoid valve on fuel oil inlet to burner • Three isolating needle valves for indicating Instruments Control and Safety's One steam pressure indicator • One digital electronic steam temperature indicator – cum- controller • One steam pressure switch for on/off combustion control • One fuel pressure indicator Important Note: We don't0 recommend	1 No.		

		coil type boiler due poor quality of water in the remote area of Africa, maintenance cost is high in case of coil type boiler. For our project we suggest shell and tube type boiler which we can supply at additional cost.			
2	Pipelines and Fittings (with PRS)	One lot of MS 'C' class pipes and fittings with necessary valve to circulate Hot water from hot water generator to pasteurizer plant and return, and to and fro line to necessary require equipments. Piping based on compact layout	1 No.		
3	LDO tank with Level Indicator - 500 L	It is to check the level of the diesel in the tank. Where the tank is made out of ms sheet cubical shape with in-let, air vent 500L- 1No and a level indicator which is transparent , flexible and unbreakable tube. The tank will also contain drain.	1 No.		
4	Boiler Chimney - 30 FT	The chimney will be fabricated from M .S sheets of 200mm and will be of self-supported .One flange to be provided with dummy flange in case extension has to be done at site. It is complete with chimney hood, & flanges with gasket, base plate and cleaning door.	1 No.		
5	Water Softener - 600 LPH	The capacity of water softener will be 600 LPH where it will be a resin based softener with pumps and salt recharging system. The softening compartment will be of M.S. material and will have all the controlling valves. For recharging a plastic tank for salt solution recirculation will be provided. The softener will have a charging time of around 2 hrs after every 10 hrs of operations. This softener will be used in line with boiler only.	1 No.		
J2). AIR			**1 SET**	**4,971**	**4,971**
1	Compressed Air Ingersoll Rand - 15 HP	Reciprocating Air Compressor Two stage, FAD: 45 cfm. Max., driven by 15 HP electric motor. Tank capacity 420 Ltrs. With all standard accessories including motor, starter, pressure switch, gauge, Non return valve, safety valves, belts, belt guard etc. . Ant vibration Pads model TS 15 OF 420 . Filter Regulator with gauge 1/2" . Moisture Separator. . Auto drain Valve with strainer Make: ELGI	1 No.		
2	Pipelines and fittings & drier	One lot of MS 'B' class pipes and fittings with necessary valve to circulate air piping from air station to packing machine, crate washer, based on compact layout.	1 Lot.		

J3) CHILLED WATER			**1 SET**	**49,707**	**49,707**
1	Standard IBT, Two Nos Water cooled condensing - 15 TR	Standard IBT with Two Section refrigeration R22 or 404. The condensing unit will consist of 3 nos. freon compressor of adequate capacity to pasteurise 15,000 Ltrs Milk and yoghurt and Fermented milk of about 6,000 Ltrs. The condensing unit the supplied with air cooled finned coil condensors of adequate capacity and air blower fans of matching capacity. The IBT will be fabricated of 202 grade stainless steel of 2.5 mm thickness with proper stifners and angle iron supports. The bottom plate should have I Section supporting structure. The outer tank will be of MS Sheet of adequate thickness and painted with epoxy paint by standard practices. The ice building coil will be of virgin copper tubing of required length into Two independent sections with separate expansion valves, solenoid valves and headers. The inner tank should be of dimensions suitable to hold 15,000 Ltrs. water. Geared agitator should be provided to facilitate melting of ice. The tank should be provided with PUFF insulation covers at the top of suitable sections. The tank should have one drain valve and two nos. outlet valves with valves and headers. Angle type filters should be provided of the outlet line. The system should have automatic electric control panel and temperature cutouts. Standards high pressure low pressure cut outs should be provided for condensing unit.1 No. Electronic temperature indicate.	1 No.		
2	Pipelines and fittings & Panel	One lot of MS 'C' class pipes and fittings with necessary valve to circulate chilled water from ice bank tank to necessary require equipments and valves, strainer and pipe fittings. Panel will be MOC of SS 304 with all the switches and indications. Piping based on compact layout	1 No.		
J4). ELECTRICAL SECTION			**1 SET**	**21,747**	**21,747**
1	Main Distribution Board	Complete electrical system with main cum sub distribution Board in coming/outgoing., Delta starter panel and electrical cable & earthing. Panel will be fabricated in 14 SWG and 16 SWG CRCA sheet with 2 coats of enamel paints. The detail HP and current can be calculated after your finalization of equipment and machineries. It will have four out comers and one spare. It will have a changeover of 125 KVA also	1 No.		
2	Motor Control Centre	Made out of CRC 14/16 g powdered coated sheets complete with standard switchgears and contactors STD 1No	4 Nos.		

		from L&T, Siemens and other standard make.			
3	Cables & trays	Details: un-armoured cables in aluminium with support. HT cable will be not in our scope.	1 Lot.		
4	Earthing and Cabling	One lot of power earthing & control cable to connect all electric motors to MCC control panel. Complete with cable tray, and supports.	1 No.		
	Note:-	In Process automation where ever the requirement of online temperature PH, flow meter, steam controls and PID panels will provided by our scope also in case any additional requirement of items needed will be provided by us after the bid but at additional cost. MCC is laready provided in each control panel and cabling between the main MDB and machine is provided.			
H). OTHER EQUIPMENTS					
A) CIP TANK SECTION			**1 SET**	**54,717**	**54,771**
1	CIP System centralized 3 Tanks system with pump, pipelines and controls - 1,000 L	Cleaning-In-Place System (centralized 3 Tanks) consists of following: **CIP Tanks (for Hot water, Lye & Acid) 1Nos. each Capacity : 1,000 L** The tanks will be insulated double wall vertical cylindro-conical in design with steam sparger for steam injection. The fabricated from SS304 sheet. The tanks will be complete with the following accessories:,Water Inlet/return Connection, Outlet Connection, Overflow Connection, Drain Connection, Thermowell to accommodate the temperature sensor. **CIP Milk pump of 3 HP capacity with necessary valves, paping, strainers, as required for the lay out .** **Capacity : Suitable.** The pasteuriser will be cleaned by circulation of chemical in its own system. The SS 316 CIP solution with suitable flow capacity supply pump will be of sanitary design. The TEFC drive motor will be fitted with stainless steel shroud with louvers for air cooling and suitable arrangement for cable connection. **Steam Sparger: Sparger for cleaning solution heating 1 No.** **Duplex Filter 1 No.** Duplex filter with suitable pore size is used to filter the CIP solution continuously. The design of the filter will be such as to facilitate quick dismantling of the filtering element. **Remote Control Panel 1 No.** It consists of following:Push buttons, starters, switches, indicating lamps, TIC. The panel will be pre-wired & pre-piped.	1 No.		

		A compact skid of suitable size will be fabricated out of SS Square pipes. The skid will have legs with SS ball feet. All cabling will be concealed in the skid of square pipes. **Pipe & Fittings 1 Set** The tank will have aswivel arrangement for return liquid. The forward and return line will be flexible hoses. **Important Note:** Milk pumps in chilling / process section will be used as CIP return pumps at the time of CIP.			
2	Water Storage Tank - 2000 L	Function is to store the UV water for the mixing of powder in order to prepare standardized milk during shortage for the hygenic purpose. Technical Specification: Construction: Single walled, sanitary design, uninsulated Design: Vertical Sanitary Finish: SS surfaces polish by150 grit Capacity: 2,000 Liters Slope: 1:15 slope towards outlet for free & complete drainage Inner Body: * Shell 2mm / SS 304 * Flat Bottom & top conical dished-end : 2.5mm Inlet: 51mm Outlet: 51mm Air Vent: 150 mm air vent Ladder: To access to the sight glass Lifting Lugs: SS (AISI 304) lifting lugs will be provided at top. Painting: M.S. Stiffeners painted with two coats of epoxy primer	1 No.		
3	SS pump with 2 HP motor - 5000 LPH	The pump will be designed to generate the required head. Finished to dairy STD the pump will be provided with the STD suction and discharge nozzles fitted with SMS unions and impeller of SS 316 MOC. Function: Transfer the hot butter oil form melting vat to ghee kettle Pump: S.S. Sanitary design Capacity: 5000 Liter per hour Pump Construction: Horizontal mono-block & coupling Shaft Pump Mounting Leg mounted with adjustable ball feet and shroud. Suction & Discharge: 38mm x 38mm Connection: SMS STD MOConstruction: AISI-304 Secondary Parts: Nitrile food grade quality Seal Type: Single Mechanical shaft seal Seal Face: Cr v/s SS (Carbon face v/s SS Face) Motor Make ABB/ CROMPTON /SIEMENS Drive Details: 3 ph, 415 volts, 50 Hz, IP-55, “F” class insulation. Motor kW/Hp/Rpm: 0.75/2 HP /2900	1 No.		

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B) EFFLUENT TREATMENT PLANT (OPTIONAL CAN BE OFFERED)					
	Effluent Treatment Plant can be offered optionally. For this we need to know the local OHAS requirement.				
C) LAB EQUIPMENT					
	Equipment for the Testing of Quality of Raw Milk is included in our scope.				
D) MILK CANS					
	40 Ltrs SS Can will be included in the scope of supply.				
E) POUCH CRATE					
	Plastic crate for stacking 10 Ltrs of Milk will be included in the scope of supply.				
			TOTAL US $		**7,28,389**
	In Words : US Dollar Seven Hundred Twenty Eight Thousand Three Hundred Eighty Nine Only.				

Terms and Conditions -

- All above prices are FOB Indian port of shipping (Mumbai)
- The above charges are excluding Freight, Insurance, and SGS Inspection charges.
- freight will be charge at the rate prevailing on day of shipment and actual volume of the shipment.
- Total nos. of Container required depend on final scope of supply.
- Assistance for Erection and Commissioning will be provided on separate terms.
- Delivery of all equipments shall be made FOB India in 12 - 16 weeks from the date PO or the receipt of advance with techno commercially clear order.
- 50% Advance with Order and Balance Prior to shipment against proforma Invoice. This amount should be confirm under Irrevocable letter of credit, duly confirmed by 1st class EEC / USA bank, freely negotiable through our banker M/S Saraswat Co Operative Bank Ltd, Karve Road Br., Nal Stop, Karve Road, Pune 411 004. India.

Yours faithfully,
For Encon Consulting Engineers,

Dhimant Desai.