

**PROCESSING PRESERVING  
AND PACKAGING OF  
MILK AT FARM**

**Start  
Farm Level Milk Plant  
at just  
₹ 15 Lakhs  
(INR)**



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And Free Consultancy**

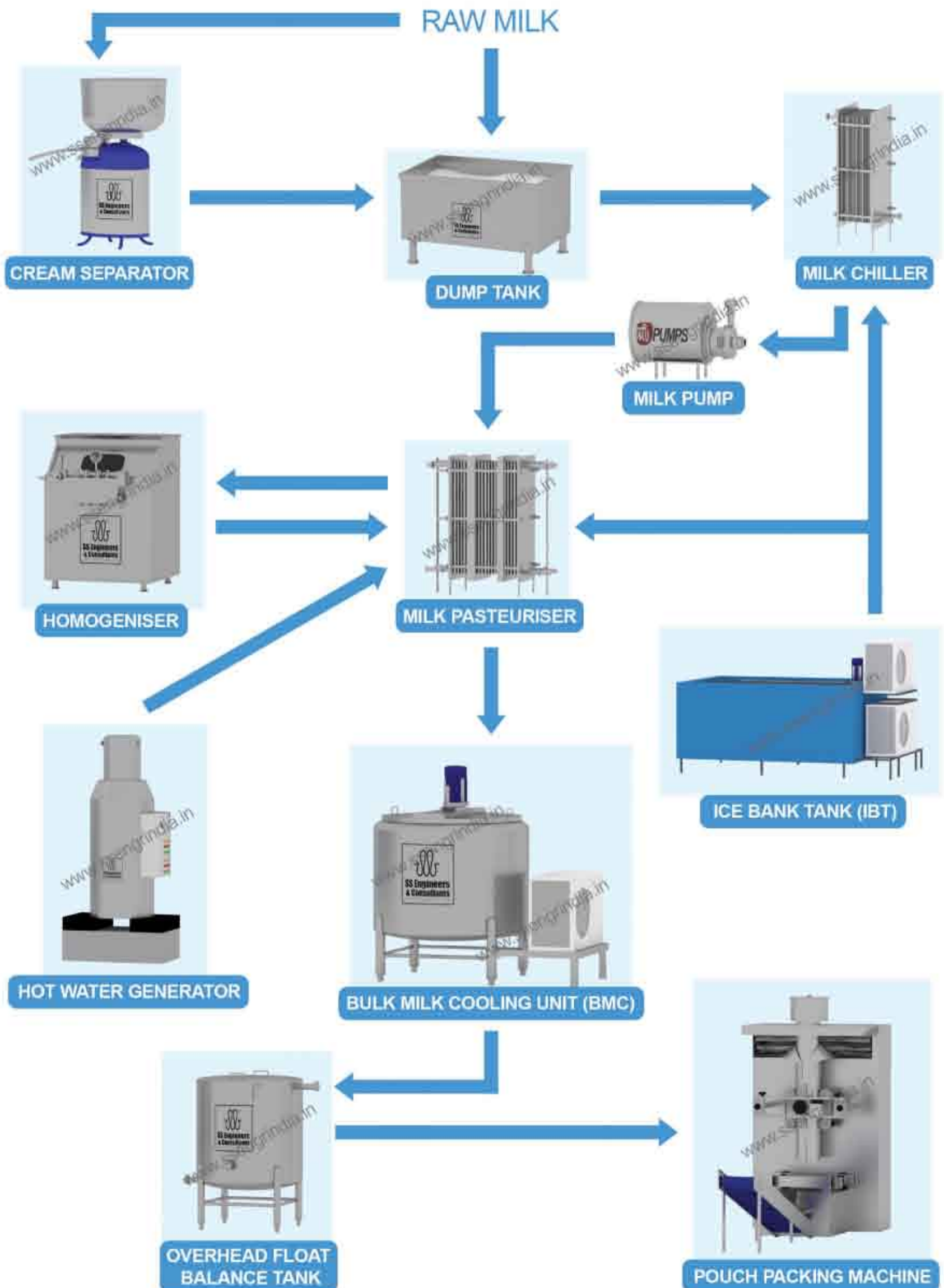
**Contact today for tailor made:  
Ice Cream Plant, Yogurt Plant,  
Cheese Making Plant, Flavoured  
Milk Plant, Paneer Plant, Whey,  
Milk Powder Plant, Butter Plant**

SS Engineers offers industry-leading technologies and systems for processing a wide range of liquid milk and milk-derived products including pasteurized/fresh milk, extended shelf-life products and ultra-heat treated milk, flavoured milk, milk mix drinks, cream and whipped cream, condensed and sweetened milk.

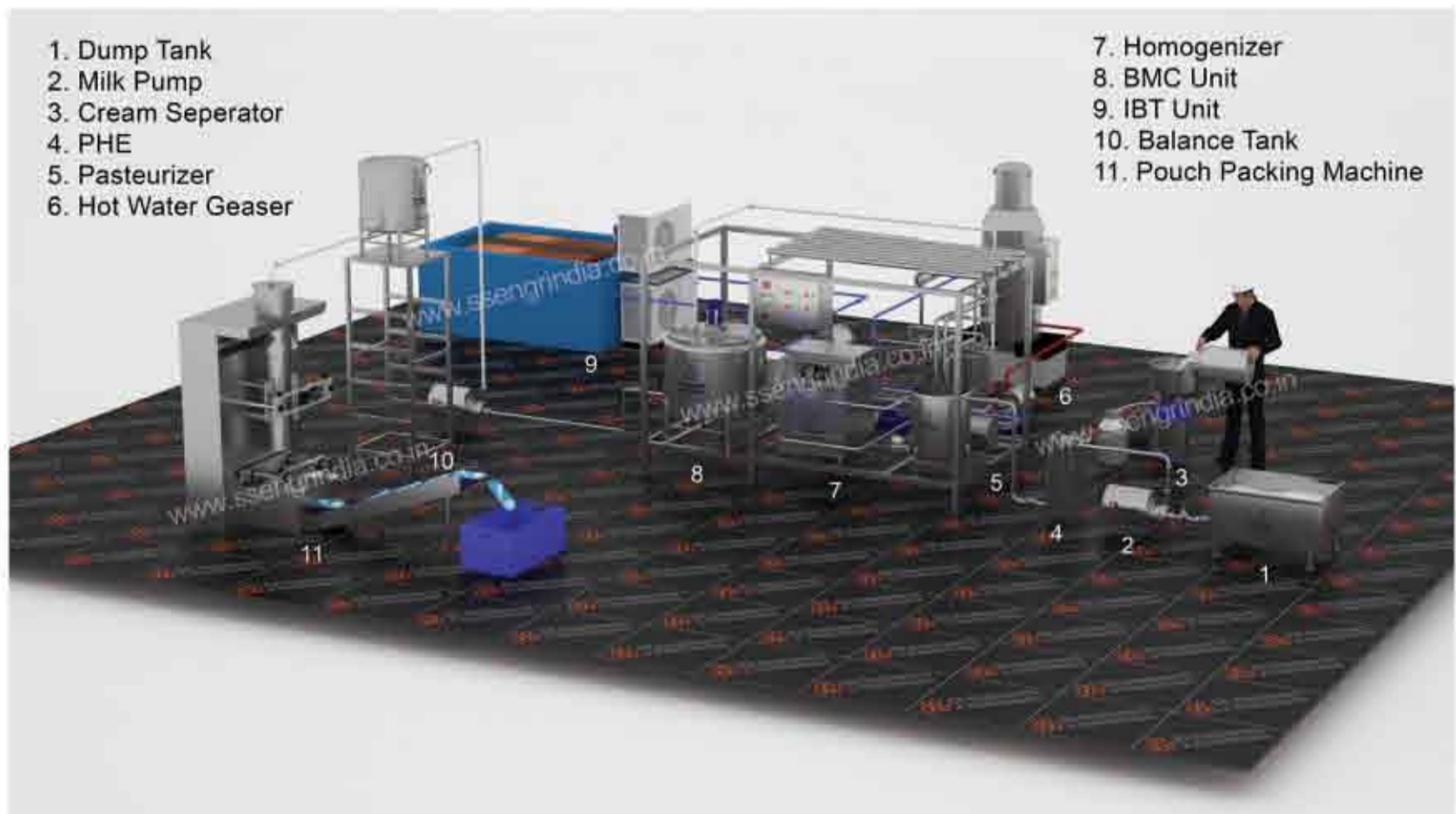
Backed by years of experience, know-how and technological expertise, SS Engineers develops and offers complete tailor-made production plants, fully integrated processing lines and individual unit operations for the treatment of raw milk and for manufacturing, process cooling, drying, filling, packaging and bagging milk-based and powdered products. From butter or ice cream to yogurt and cheese, infant formula, milk powder, whey and its derivatives.



# Milk Processing Plant - Flow Chart



# Milk Processing Plant



**SS Engineers and Consultants have designed a skid mounted mini milk plant which requires minimum area, electric power & man power to operate.**

Dairy processing is rising rapidly around the globe to meet the increasing appetite for milk and milk products from an ever-growing population. SS Engineers & Consultants years of experience and comprehensive know-how is leading the way in processing one of the world's most important and versatile foods.

SS Engineers & Consultants offers customized turn-key solutions to dairy industries with highly proficient milk processing plants and machines. We design, engineer and supply complete plants, processing lines and equipment for treating raw milk, filling and packaging of milk and milk-based products.

Our firm has installed and executed many projects of milk processing plants with capacity ranging from three thousand liters per day to one lakh liters per day. All our milk processing plants was designed and engineered to meet strict hygiene, food safety and quality standards.

This skid module is advanced than the regular processing plants. In this, the farmer can process the milk up to 1600 LPD (8 hours shift). The farmer can also produce the ghee from the milk cream, which is attained while standardizing the milk fat through cream separator.

Same as said earlier the milk obtained through cans is dumped into the dump tank, further the milk is cooled down to +4°C in the milk chiller. Then the milk is pasteurized in the pasteurizer and then milk homogenized to break all the fat particles into even size. Later the milk is stored in the BMCU to maintain the temperature at +4°C then transferred through the milk pump to the packing machine via overhead balance tank to pack in pouches.

**Table No:1. Equipment List**

Sl No.	Item Description	Capacity	Quantity
1.	Dump Tank (SS 304)	500 Ltrs	1 No
2.	Raw Milk Chiller	500 Lph	1 No
3.	Cream Separator Offline Type	300 Lph	1 No
4.	Milk Transfer Pump	0.5 Hp	3 Nos
5.	Balance Tank (SS 304)	50 Ltrs	1 No
6.	Milk Pasteuriser	200 Lph	1 No
7.	Homogeniser (Two Stage)	200 Lph	1 No
8.	Hot Water Generator	12 KW	1 No
9.	Ice Bank Tank (IBT)	0.5 Ton	1 No
10.	Bulk Milk Cooling Unit (SS 304)	500 Ltrs	1 No
11.	Balance Tank (SS 304)	50 Ltrs	1 No
12.	Milk Pouch Packing Machine (Single head)	1200 Pph	1 No
13.	SS Valves, Pipes & Fittings	38 mm	1 Lot
14.	Electrical Panel Board, Cables & Earthing	-	1 Set
15.	SS Skid	40 x 40 mm	1 No



**Table No:2. Equipment Power Ratings**

Sl No.	Item Description	Power Rating
1.	Cream Separator Offline Type	1 Hp
2.	Milk Transfer Pump	0.5 Hp
3.	Homogeniser (Two Stage)	3 Hp
4.	Hot Water Generator	16 Hp
5.	Ice Bank Tank (IBT)	5 Hp
6.	Bulk Milk Cooling Unit (SS 304)	3 Hp
7.	Milk Pouch Packing Machine (Single head)	1 Hp
8.	Total	29.5 Hp



**Table No:3. Area requirement**

Sl No.	Item Description	Power Rating
1.	Built up area required for machinery	600 Sq Ft
2.	Area required for raw material storage	200 Sq Ft
3.	Area required for packed milk storage	45 Sq Ft

**Table No:4. Wate requirement**

Sl No.	Item Description	Power Rating
1.	Water requirement (8 hours, which can be recycled)	3000 Ltrs

# Milk Processing Plant



## DUMP TANK

The rectangular stainless steel dump tank will be fabricated from SS sheets of 2mm thickness conforming to AISI 304 quality. The tank will be welded construction, with welding done by argon arc welding process. All the welds will be polished and finished to dairy standard. All the corners will be well radiused. The tank will have three way slopes towards outlets for free and complete draining of liquid. The tank will have following fittings.

1. SS Legs fitted with SS Ball Feet capable of vertical adjustment of 50 mm - 4 nos.
2. SS Outlet of size 38 mm ending on outside with a Two Way Plug Valve - 1 No.
3. SS 304 - 2 mm thick - Covers.



## RAW MILK CHILLER

The single section plate heat exchanger will be used for chilling the milk from 35 deg.c. to 4 deg.c. by means of chilled water at 1 deg.c. in the ration of milk: chilled water 1:3 . The frame and pressure plate of the PHE shall be fabricated out of mild steel plates clad with SS sheets. The supporting structure of the PHE will be of multi bolt tightening type design to be operated manually with SS ball feet arrangement. The heat exchanger plates will be pressed from SS sheets and of AISI 304 quality & sanitary design. The sealing gasket will be of food grade nitrile rubber capable of with standing high temperature during in place cleaning operation. The PHE will be provided with following.

1. SS Nozzles one each for Chilled Water Inlet / Outlet, Milk Inlet / Outlet of size 38 mm ending on outside in Unions - 4 nos.
2. Thermo wells with mercury in glass thermometers range 0 to 120° Celsius - 2 nos.



## CREAM SEPARATOR (OFFLINE)

Machine Capacity	: 300 Ltr / Hr.
Tank Capacity	: 25 Ltr.
No of SS Discs	: 26
Motor	: 1425 RPM Single Phase Electric Motor
Separation Temperature	: 35 - 40 C / 95-108 F
Solid Removal Time	: 1.5 Hour
Machine Size	: L 660 mm X W 550 mm X H 1200 mm
Machine Weight	: Nett: 70 Kgs Gross : 150 Kgs Approx.
Bowl Material	: SS 304
Spout Set Material	: SS 304 Sheet
Receiving Tank Material	: SS 304 Sheet

# Milk Processing Plant



## MILK TRANSFER PUMP

The SS centrifugal pump will be directly coupled to 0.5 HP TEFC NGEF / Bharat bigili Motors suitable for the operation of 3 phase. 400/440 volts, 50 HZ , AC supply. All the components coming in direct contact with the milk will be fabricated out of stainless steel AISI 304 quality. The SS parts will be finished to dairy standards. The motor portion of the pump will be SS shrouded. The shroud will have air circulation holes and cable entry. The pump will be fitted over 3 legs and ss ball feet having vertical adjustment of 50mm. The pump will have following components. 38 x 38 mm suction and discharge nozzles fitted with union.



## BALANCE TANK

The tank will be fabricated from SS sheets of AISI 304 quality of 2mm thickness. The tank 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. All the SS surfaces will be well radius. The tank will be provided with following:

1. One number SS milk inlet for return milk.
2. One number SS milk outlet.
3. Three number SS legs fitted with SS ball feet.



## MILK PASTEURISER

The system offered is having all connect parts of SS 304 / SS 316. The intermediate connection blocks are manufactured with laser cut precision sheets for maintaining the dimensions and made from SS 304 plates. The phe frame is manufactured from is 202 grade plate duly clad with SS 304 sheet. The heat exchanger plates shall be of SS 316 with nbr gaskets. All external surfaces is ground and polished with 120 grit finish.

# Milk Processing Plant



## HOMOGENISER (Two Stage)

Capacity	: 200 LPH
No. of Stages	: Two
Application	: Milk
Plunger Dia.	: 16 mm
Max. Design Pressure	: 200 Bar (2844 PSI)
Max. Operating Pressure	: 175 Bar (2500 PSI)
Type of operation	: Manual
No. of Plungers	: 3 Nos.
M O C of Plunger	: Special Alloy with hard chrome plated
Homogenizer Speed	: 250 SPM (Suitable for Continuous duty)
Electric Drive Motor	: 3 HP 3 phase 720 RPM
Motor Starter	: DOL starter will be provided
Drive Mechanism	: Direct Belt drive
Pressure Gauge	: Flat diaphragm type (0-400 Bar)
M O C of all fluid	
Contact Surface	: AISI 304 (S.S.)
The Body	: The body of the Homogenizer casing is made out of Cast Iron.
M O C of Homogenizer Valve & Seat	: Imported Stellite (Germany)
M O C of suction & dis. Valve Homogenizer	: AISI 304 with Satellite Seating
Covering / Gladding Homogenizer legs	: Teflon coated SS 304 enclosure 4 Nos with adjustable SS ball feet & floor plate.
Oil Window	: Provided an oil window shows level of oil in Crank Box.
Tool Kit	: We shall provided all necessary tool kit along with the machine
Instruction manual	: Will be given along with the machine
Working Spares	: 01 Set will be given as free of cost.



## BULK MILK COOLING UNIT

Milk Cooling Tank Bulk Cooler 500 Ltrs Model Cdx1kots1p Direct Expansion Cooling Tank (Open Tank Semi Cylindrical Rectangular Shape) capacity 500 Ltrs has large opening lids for easy access and rounded internal corners, to facilitate through cleaning. Tank insulation is provided by factory injected polyurethane foam of 50 mm. The integral condensing unit is Hermetic Type with R22 refrigerant Having Features of :-

1. Low Running Cost.
2. High Standard of Milk Hygiene Reduced Electricity Consumption Agitator On / Off.
3. Cooling On / Off.
4. Digital Temperature Display.
5. 35<sup>o</sup> C to 4<sup>o</sup> C within 3 hours for 1st milking & 10<sup>o</sup> C to 4<sup>o</sup> C within 1.5 hours for the 2nd milking.
6. Condensing Unit Hermetic, 220V Single Phase / 415V
7. 3Phase, 50 Hz supply Two Milking Tank Design.
8. All SS 304.

# Milk Processing Plant



## MILK POUCH PACKING MACHINE (SINGLE HEAD)

Type of the Machine	: Fully automatic Single head : mechanically operated with PLC
Speed of the Machine	: 200 ml -> 1200 Pouches Per Hour : 500 ml -> 1200 Pouches Per Hour
Filling Range	: 200 ml and 500 ml
Accuracy	: $\pm 2$ ml
Supply of Voltage	: Single Phase 230V
Electronic Control Systems	: PLC Systems Machine speed Fixed
Type of seal	: Over lap & Impulse heat seal, 3 mm band
Power consumption	: 2 Kw
Pouch Length Systems	: Mechanical adjustment
Filling Systems	: Gear Pump Systems / Gravity systems
Packing material	: Virgin film - any impulse sealing material like co-ex LDPE film width : 324 $\pm$ 2mm Film thickness :50 to 60 microns
Cooling water	: 100 ltr per hour at 20 c
Motor	: 1 HP Crompton Make
Gear Box	: 1:40 Transtech



## ELECTRICAL PANEL BOARD

MOC	: CRCA - IP Protection
Power Rating	: 440V / 63A
Starters	: MCB (Schneider)
Power Cable	: Aluminium Armored (Polycab)

### Optional Items

Sl No.	Item Description
1.	3 Port Milking Machine
2.	Plastic Milk Crate
3.	Plastic / SS Milk Can
4.	LPG Operated Ghee Making Pan (120 Ltrs)
5.	Butter Churner (10 Kg)
6.	Steam Washer
7.	Deep Freezer (for Milk Pouch Storage) 500 Ltrs
8.	Power Backup Diesel Generator (30KVA)



# Contact us today

 **SS Engineers  
& Consultants**

Manufacturers of Dairy, Pharma, & Chemical equipments, Tanks, Vessels, Industrial Cleaning equipments, Turnkey projects – food processing, liquid food, milk and milk products. Sanitary Pumps, Valves and Pipeline Fittings for process industries

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