

## BUTTER MANUFACTURING EQUIPMENT



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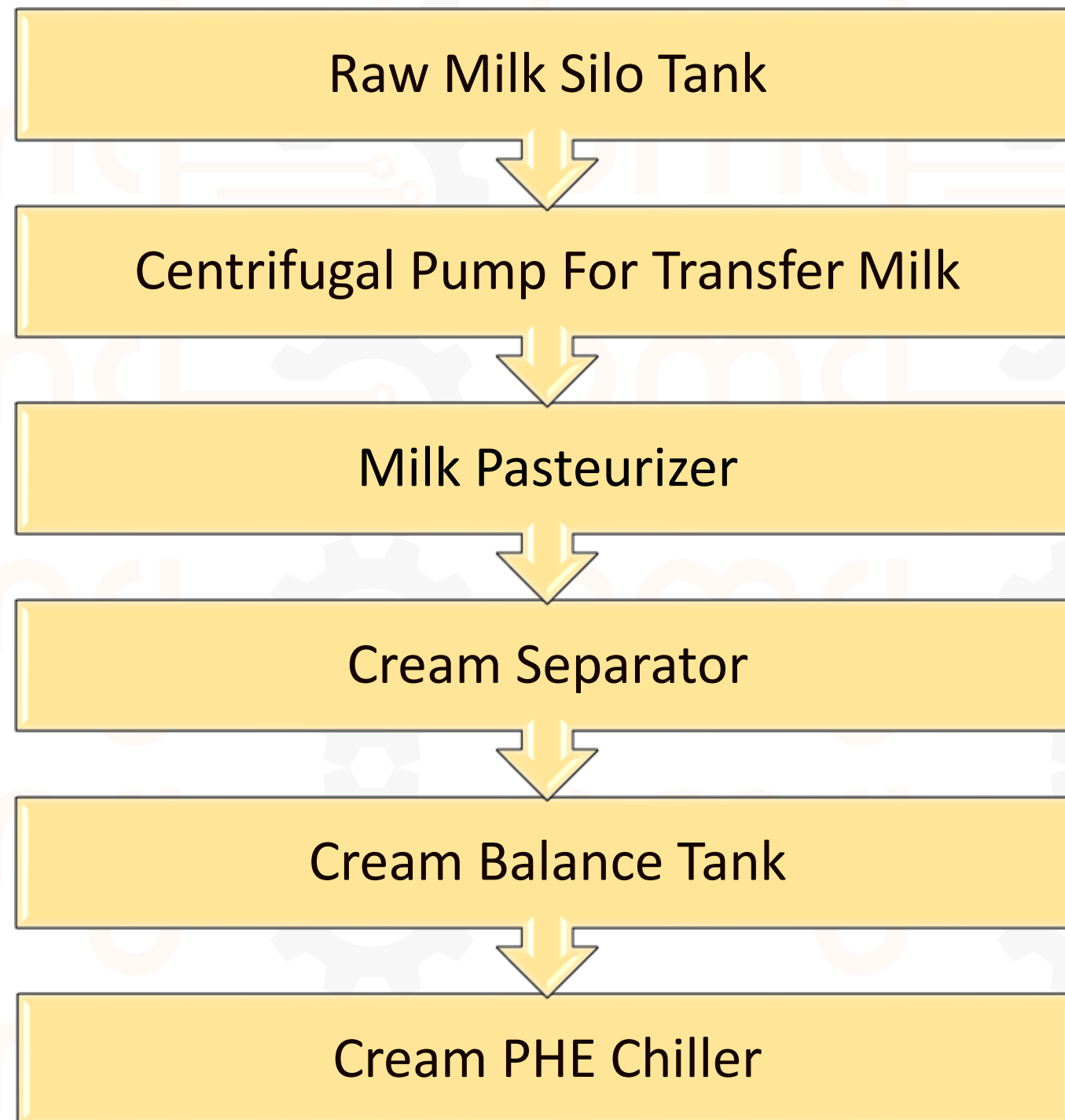
## 1. INTRODUCTION

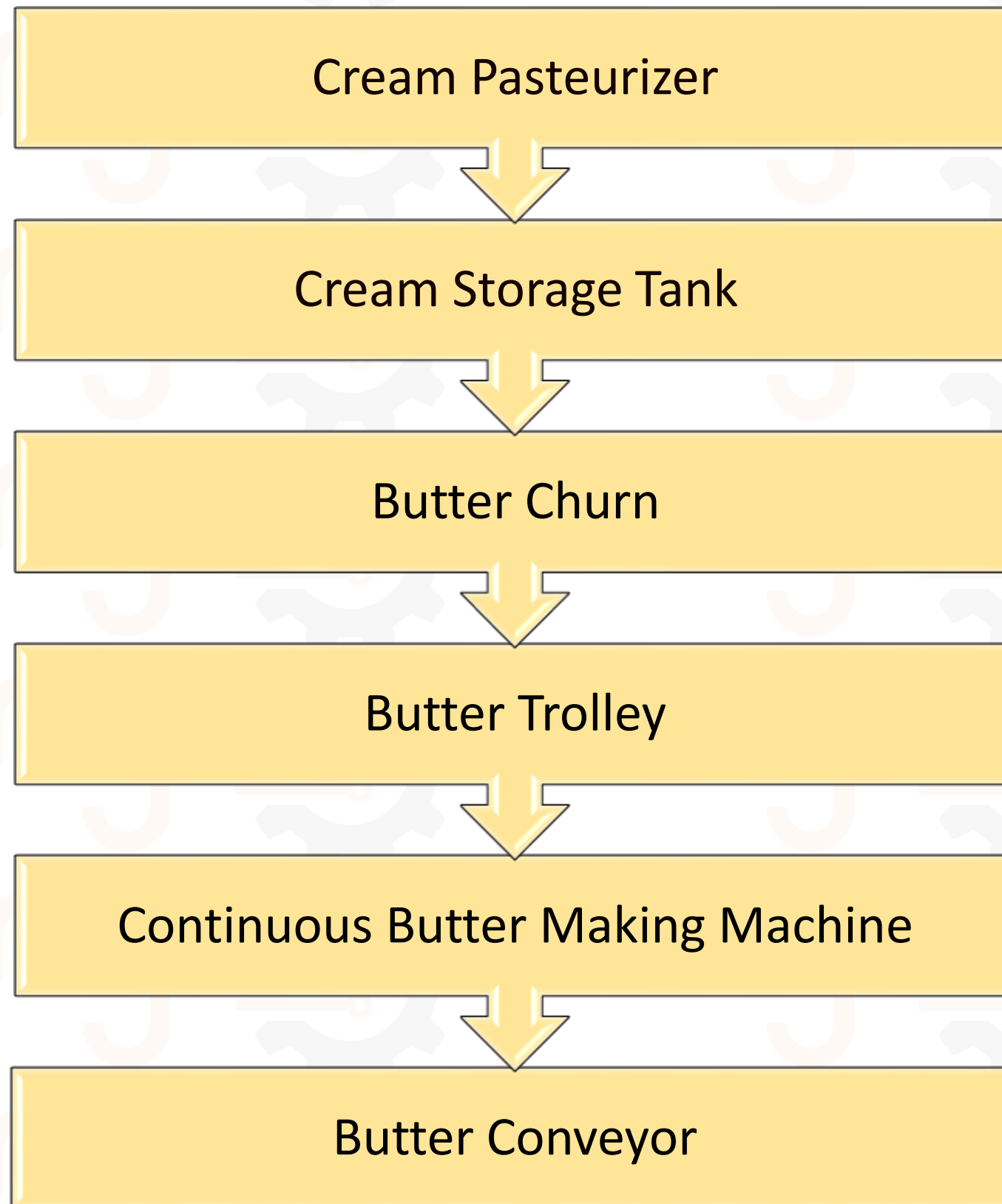
1. One of the highly concentrated forms of fluid milk and a fat rich dairy product.
2. Twenty litres of whole milk produce one kilogram of butter.
3. Skim portion has increased in value and is utilized in other products.
4. Obtained by churning cream and working the granules thus obtained into a compact mass.
5. Development of centrifugal cream separator in 1879.
6. Cream is held at cool temperatures to crystallize the butterfat globules, ensuring proper churning and texture of the butter. In the aging tank.

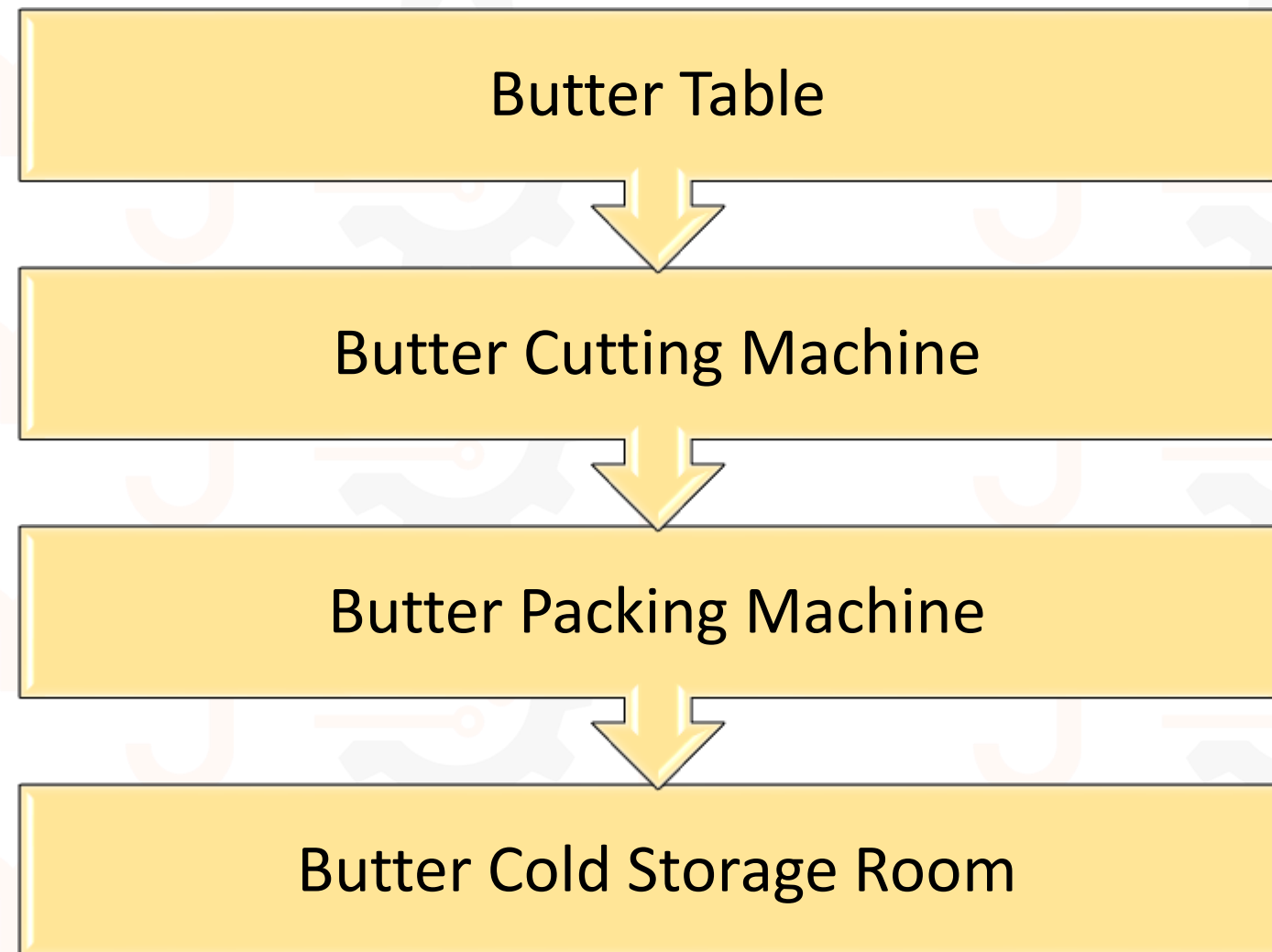
## Composition of Butter

| Sr. No | Description                   | %          | Remark |
|--------|-------------------------------|------------|--------|
| 1.     | Fat                           | 11.5 g     |        |
| 2.     | Protein                       | 0.1 g      |        |
| 3.     | Energy                        | 101.8 kcal |        |
| 4.     | Salt                          | 0-3        |        |
| 5.     | Butter Churn Cream Containing | 80 %       |        |
| 6.     | Butter Churn Cream            | 20 %       |        |
| 7.     | Butter Milk Fat               | 80 - 82    |        |
| 8.     | Percentage Of Water           | 16 - 17    |        |
| 9.     | Percentage Milk Solid         | 1 - 2      |        |

## 2. BUTTER MANUFACTURING









❑ **Raw Milk Silo Tank** - Stainless Steel Milk Storage Tanks to store the milk at 4 Deg. C for long durations. The tank is provided with isolation in the outer jacket. The milk inlet should be non foaming type at the top.

❑ **Centrifugal Pump** - A centrifugal pump is a mechanical device designed to move a fluid by means of the transfer of rotational energy from one or more driven rotors, called impellers.





❑ **Milk Pasteurizer** - Milk pasteurization is the process of heating milk to a predetermined temperature for a specified period without re-contamination during process. Flash pasteurization involves heating milk to 71.7°C for 15 seconds to kill *Coxiella* which is the most heat-resistant pathogen in raw milk. The milk to between 72°C to 74°C for 15 to 20 seconds.





❑ **Cream Separator** - Machine for separating and removing cream from whole milk. Its centrifugal operation separate two phases since skim milk (milk with no butter fat) is heavier than cream.

❑ **Cream Balance Tank** - The balance tank keeps the product at a constant level above the pump inlet. This keeps the head on the suction side constant, preventing dry run of pump



❑ **Cream Chiller** – Separated cream is chilled and before further processing or storage to prevent microbial growth. The cream is chilled to around 4 Deg. C

❑ **Cream Pasteurizer** – Build for high temperature flash heating, with regenerative and cooling units. Pasteurized cream has comparatively more shelf life due to reduction in microbial load.



❑ **Cream Storage Tank** - Cream tanks / Cream processing tanks are process tanks in which cream are stored or processed. These tanks often have conical bottoms, are cooled by means of a dimple jacket and are completely insulated.



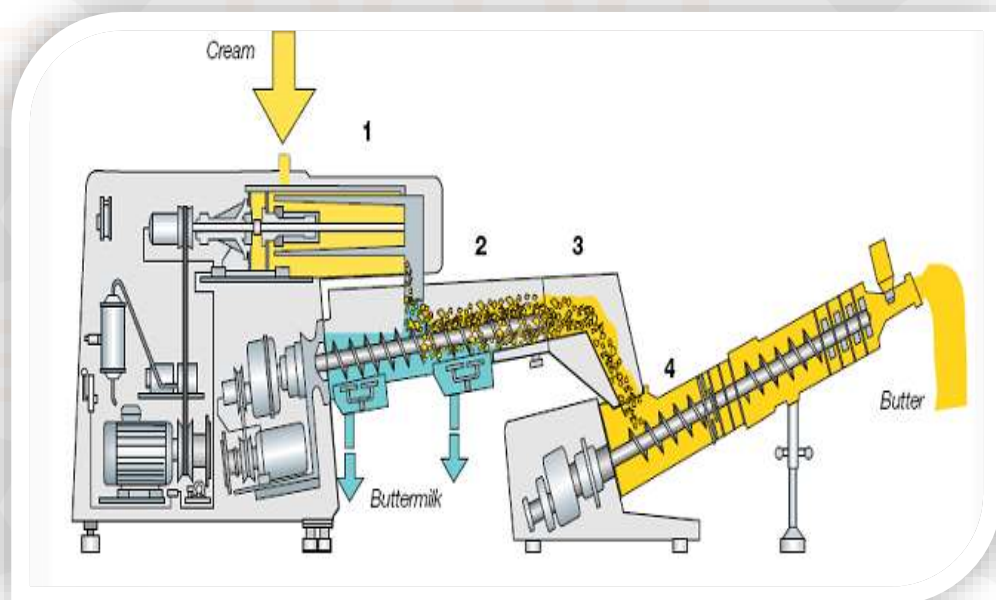
❑ **Butter Churn** - A device used to convert cream into butter. This is done through a mechanical process



❑ **Butter Trolley** - These trollies are used for transportation of butter from one section to the other within the dairy.



❑ **Continuous Butter Making Machine** - Cream flows from the cream storage tank via a balance tank and is fed by means of a positive displacement pump to the rear of the primary churning section. The residence time for cream in the section is only 1- 2 min very short time.





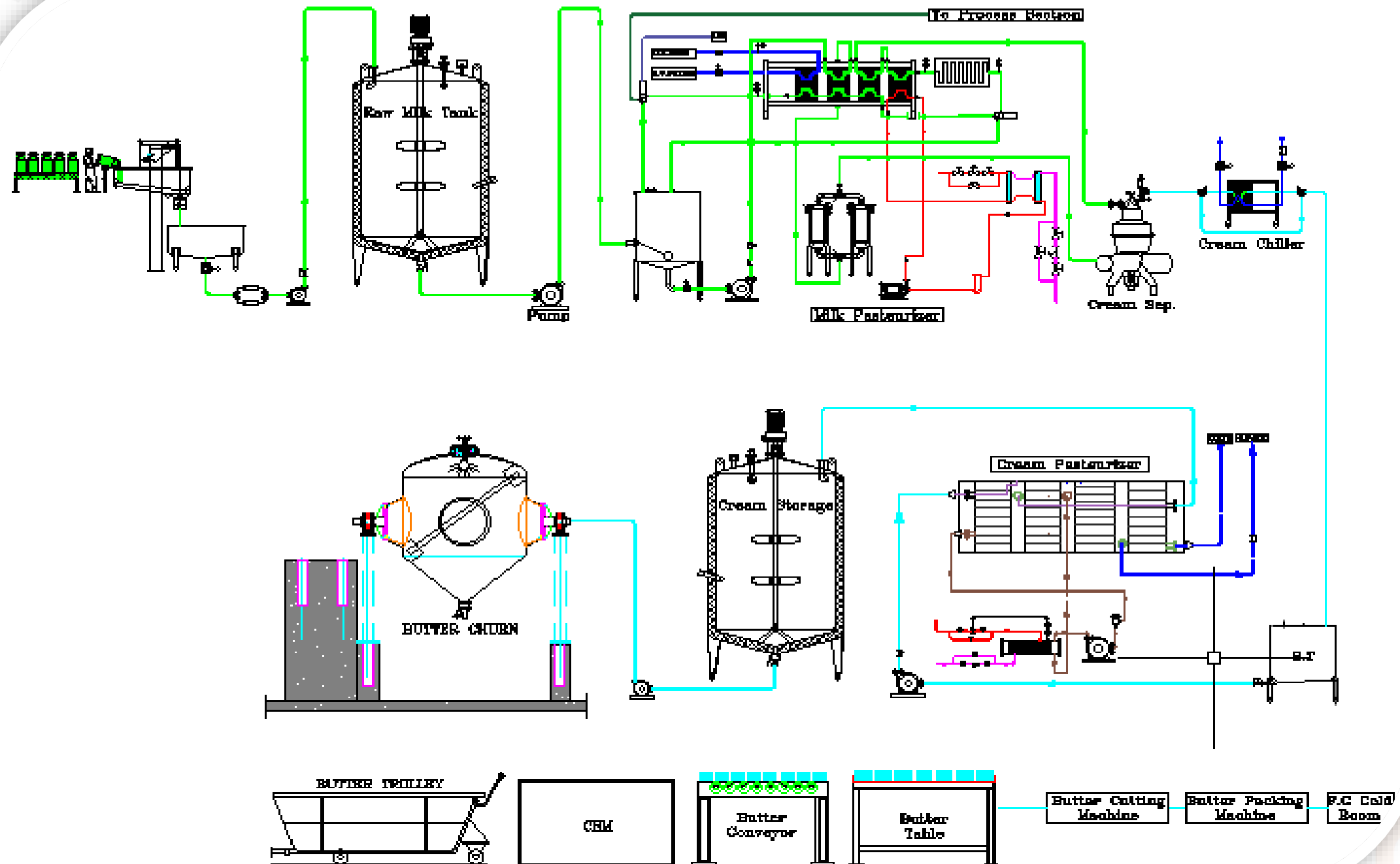
❑ **Butter Cutting Machine** - Butter block cutting M/C is designed to cut butter blocks into small pieces before homogenizing, re-packaging processes.



❑ **Butter Packing Machine** - Butter wrapping machine is designed for filling and wrapping butter etc. into Al. foil, parchment paper or ecocline (with memory).

❑ **Butter Cold Room** - Butter cold room temperature required - 18 Degree. for storage till intended use or dispatch. During dispatch, it is still kept at -20 to – 18 Deg. C

### 3. P & I DIAGRAM FOR BUTTER MANUFACTURING EQUIPMENT



## 4. REFERENCE

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