M.Kumarasamy College of Engineering

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FINAL REVIEW

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ECONOMICAL MILK CREAM SEPARATER

ABSTRACT

A milk cream separator is a machine used to separate cream from milk. It works by utilizing centrifugal force to spin the milk and separate the fat (cream) from the liquid (skim milk). Here’s how it works:

Milk is poured into the machine: The milk is added to a rotating drum.Centrifugal force: The drum spins at high speeds, causing the heavier skim milk to move toward the outer edges, while the lighter cream moves toward the center.Separation: The separated cream and milk are then directed into different containers.

INTRODUCTION

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CONSTRUCTION

The construction of a milk cream separator involves several key components that work together to efficiently separate the cream from milk using centrifugal force. Here's a breakdown of the main parts that make up the machine:

Inlet Chamber:
The milk enters the separator through the inlet chamber.It is typically located at the top of the machine and is where the milk is initially poured. The chamber leads to the centrifuge drum, where the separation process occurs.

Centrifugal Drum:
The heart of the separator is the rotating drum. This drum is usually made of stainless steel or aluminum for durability and corrosion resistance.The drum rotates at a high speed (up to several thousand RPM), which creates a centrifugal force that helps separate the cream from the milk.

Spindle and Shaft:
The spindle is a central shaft that supports the rotating drum.
It is powered by an electric motor (or manually, in smaller units) and ensures the drum spins efficiently.
The spindle connects the drum to the driving mechanism, transferring motion from the motor.

WORKING PRINCIPLE

The working principle of a milk cream separator machine is based on centrifugal force, which is used to separate the cream (fat) from the milk. When milk is spun at high speeds in the separator's centrifugal drum, the different components of the milk are forced to separate due to their different densities.

Here is a step-by-step explanation of how the milk cream separator works:

Milk Feeding:

Fresh milk is poured into the inlet chamber of the separator.
From there, the milk enters the centrifugal drum through a special feed pipe.

MODEL DIAGRAM

ADVANTAGE

Efficient Separation:
The milk cream separator uses centrifugal force to separate cream from milk effectively, ensuring high separation efficiency with minimal loss of cream.

High-Quality Cream:
The machine provides high-quality cream with a high fat content, ideal for dairy products like butter, cheese, and ice cream.

Time-Saving:
Compared to traditional manual methods, a milk cream separator significantly reduces the time required to separate cream, making it suitable for both small-scale and large-scale dairy operations.

DISADVANTAGE

Initial Cost:
The upfront cost of purchasing a milk cream separator can be high, especially for advanced models with electric motors and additional features.

Maintenance Requirements:
While the separator is generally durable, it requires periodic maintenance to ensure it operates efficiently. This includes cleaning, oiling, and occasional part replacements.

Electricity Dependency:
For electric-powered models, an uninterrupted power supply is required. In case of power outages, the machine may become unusable unless a manual model is available.

Thank You