



MilkTech International



Cleaning and Sanitation:
Introduction to
Cleaning System Components,
Circuits and Control

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Objective

- ☞ Identify the basic components of a milking machine cleaning system.

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Importance

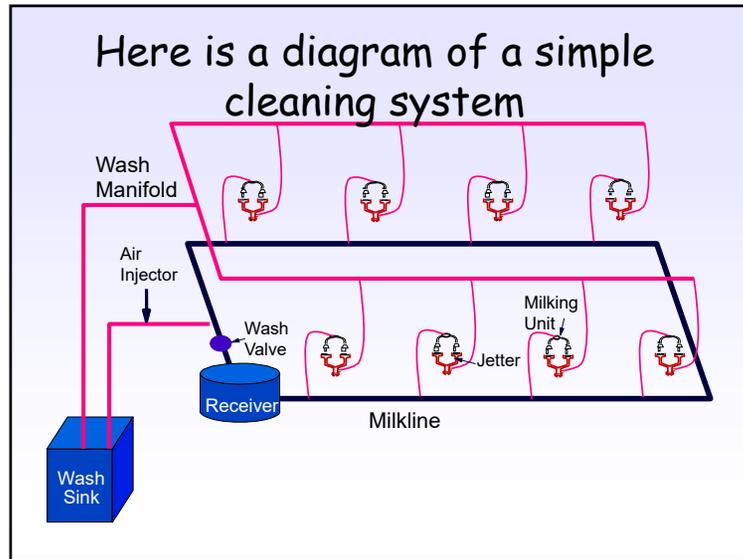
- ☞ As milking machines become more complex, the task of assuring adequate circulation and mechanical cleaning action in all parts of the milking machine becomes increasingly difficult.

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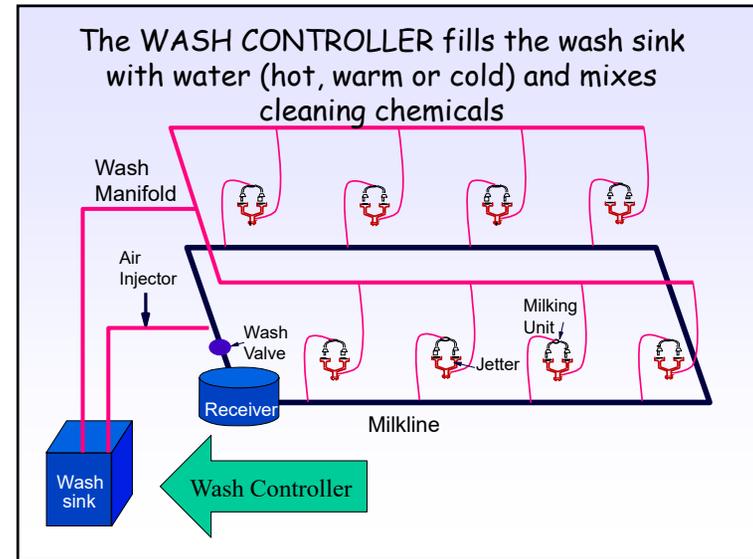
Let's look at cleaning and sanitation systems

- ☞ There are several components of a cleaning system that are connected to the milking machine in different locations:
 - ☞ Wash controller
 - ☞ Wash vats (or wash sink)
 - ☞ Manifolds and delivery lines
 - ☞ Air injector

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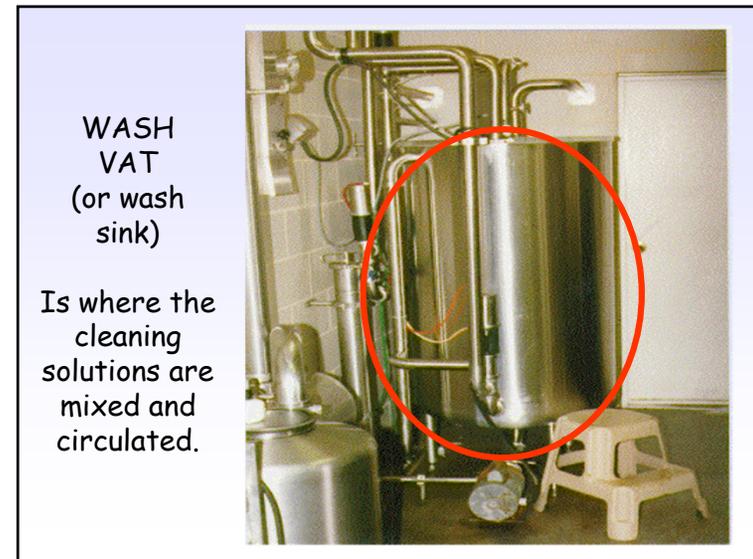
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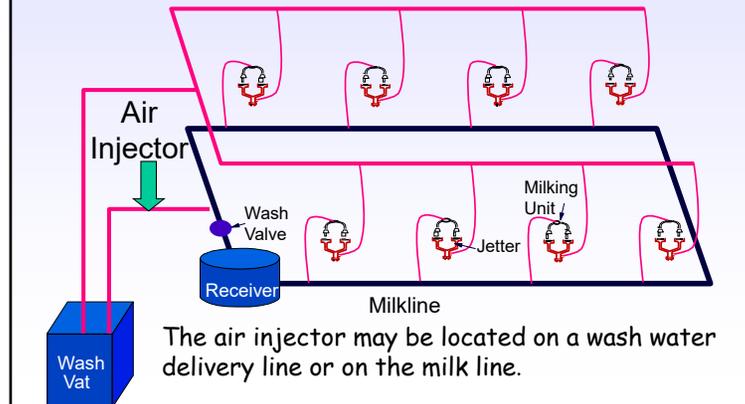


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An automatically controlled valve called the AIR INJECTOR admits air to move cleaning solutions around the milk lines



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Milkline Mounted Air Injector and controller



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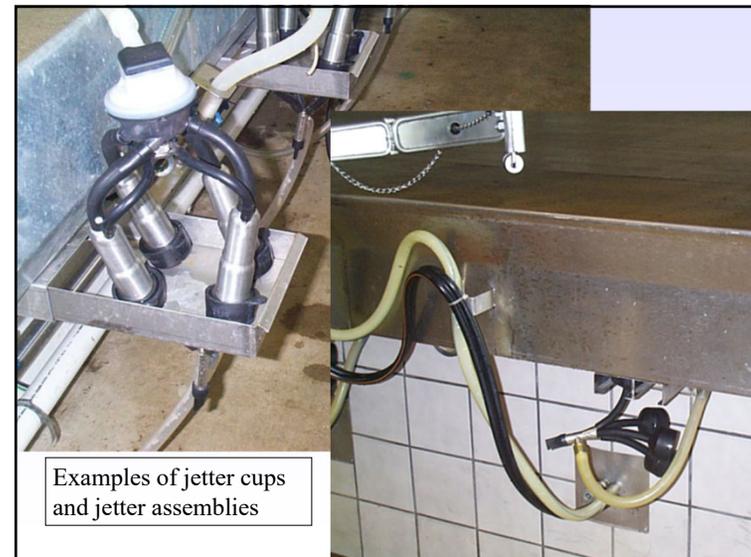
Wash Manifold

In milking parlors, milking units are commonly attached to wash assemblies (jettors) fed from a wash manifold.

- This water-draw pipe network and jettors make up the wash manifold.

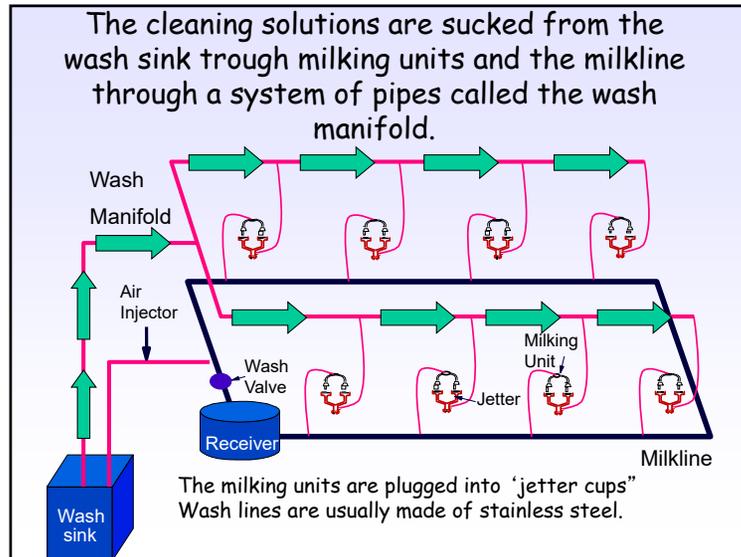
- Cycled air-injection may enter through the wash manifold, the milkline or both.

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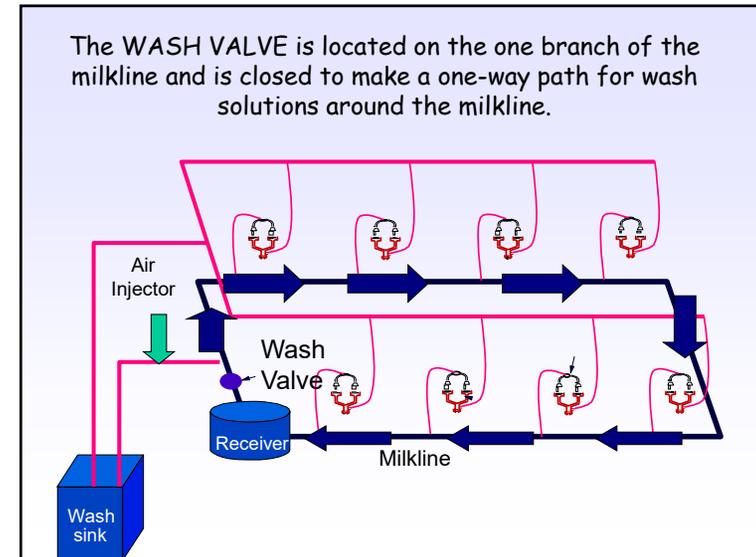


Examples of jettor cups and jettor assemblies

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Other components of cleaning systems are:

- 🐄 Milk pump
- 🐄 Drain valves
- 🐄 Vacuum pump

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The role of the Milk Pump

- 🐄 Cleaning solutions are transported from the wash sink through the sanitary parts of the system and back to the wash sink during the CIP process.
- 🐄 The milk pump must have enough capacity to return all cleaning solution to the wash sink.

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Milk pump capacity ...

- ☞ ... is often a limiting factor in CIP systems
 - ❶ The distribution of water flow between units should be as uniform as possible to make the most efficient use of water when cleaning milking equipment and to avoid exceeding the capacity of the milk pump.

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Drainage

- ☞ All pipelines, hoses and components must be installed so that they will drain by gravity between cleaning cycles.
 - ❶ Drainage is an important aspect of cleaning because any standing water in the system increases the risk of bacterial growth between milkings and mixing of different cleaning chemicals during cleaning.
 - ✓ Drain valves are an important part of this process.

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Vacuum pump capacity requirements for cleaning

- ☞ With proper system design and control strategies, the vacuum pump capacity required for cleaning most milking machines is less than the minimum recommended for milking.
 - ❶ Additional vacuum pump capacity may be required on large systems using air injectors.

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Operating Procedures

- ☞ As with milking there should be clearly defined operating procedures for milking machine sanitation and all new staff should be trained.
 - ❶ Operating procedures should include instructions of how to prepare the milking machine for cleaning and sanitation:
 - ✓ Operation of any manually controlled valves, pipes and switches.
 - ✓ Chemical handling (including checks for empty chemical containers).
 - ✓ Washing of external surfaces of milking machine, milking parlor and milk room.

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Hand cleaning

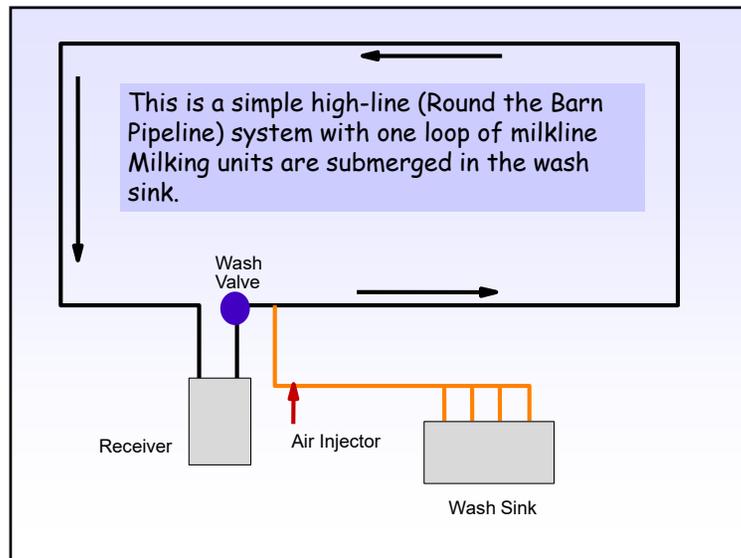
Even in the most modern milking machine there are still components that must be disassembled and cleaned by hand.

- Make sure the staff knows which components need to be manually cleaned and that the proper chemicals are used for this task.

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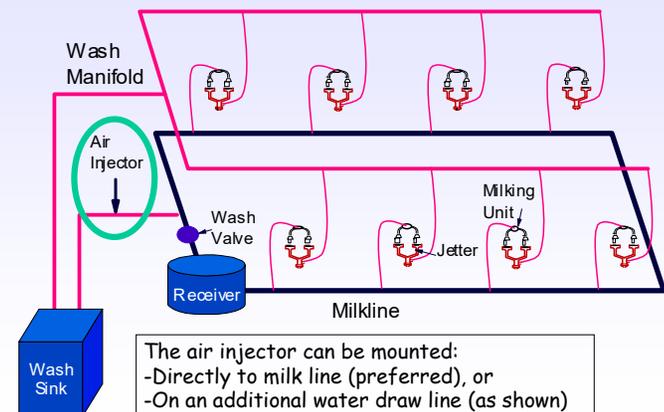
Let's look at some typical cleaning circuits

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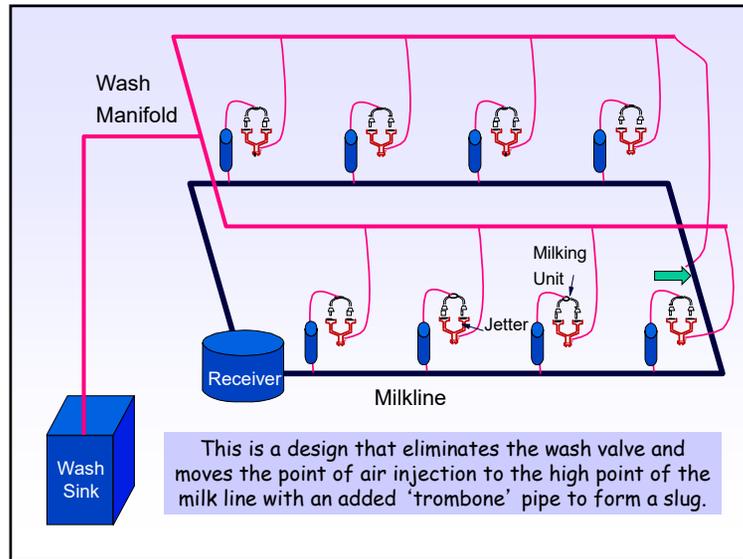


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This is a simple parlor system with air injection applied only to the milking line



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