



# Sustainability in commercial laundering processes

Module 4

Usage of Energy and Detergents

Chapter 3

## Dosing Systems

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Education and Culture

**Leonardo da Vinci**

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- Types of Washing Machine
  
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- Latest Dosing Systems



After finishing this chapter, you will:

- Know the types of industrial washing machines
- Know the types of dosing systems
- Know the options for supply of liquid products and the advantages of bulk liquid systems
- Know the types of pumps used for liquid dosing



- Know the options for supply of powder products
- Know the types of powder dosing system
- Know the relevance of combination systems
- Know what the latest dosing systems can offer to a laundry

# Types of Washing Machine

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There are 2 Types of Washing Machine

- Washer Extractors

- Continuous Batch Washers

# Types of Washing Machine



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Washer  
Extractor

# Types of Washing Machine



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Continuous  
Batch  
Washer -  
Loading

# Types of Washing Machine



Continuous  
Batch Washer –  
Side View



# Types of Washing Machine



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Continuous Batch Washer – Side View

# Types of Dosing Systems

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There are 3 Types of dosing systems

- Liquid Systems
- Powder Systems
- Combination of Both Systems

# Types of Dosing Systems



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Bank of Peristaltic Pumps for automatic liquid dosing linked to MIS

# Types of Dosing Systems



Liquid automatic dosing system – peristaltic pumps

# Types of Dosing Systems



Liquid automatic dosing system – peristaltic pumps

# Types of Dosing Systems



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Powder  
automatic  
dosing unit



### SUPPLY:

Liquid products are supplied in the following Containers

- 20,25,100 & 200 Litre Drums known as Packed Stock, normally delivered on pallets
- For larger product volumes, liquids are normally delivered in 1000 Litre IBCs or Bulk road tankers and pumped into Bulk Tanks on the customer premises



200L drums - lance  
feed to pumps –  
“packed stock”





100L drums –  
lance feed to  
pumps - “packed  
stock”



Bunded bulk  
liquid storage  
tank



Bunded bulk liquid storage tank



Bunded  
bulk liquid  
storage tank



Intermediate liquid storage tanks – for multi machine dosing



### Advantages of Bulk Systems

- Reduction in the number of Packed Stock (e.g. Drums)
- Reduction in the number of deliveries because of larger product volumes
- This equates to less product container waste (drums & pallets) and fewer deliveries which in turn means less pollution
- Less Pollution = Environmental Benefits



### Types of Liquid Pumps

- Manual (Hand Dosing) The problem with hand dosing is the chemical hazard of certain products (e.g. Corrosive)
- Peristaltic Pumps
- Gear Pumps
- Diaphragm Pumps
- Volumetric/Piston Pumps



The Original  
Dosing Kit





Peristaltic pumps



Peristaltic Pumps



Gear Pumps



Volumetric/Piston  
Pump



Volumetric/  
Piston Pump



### SUPPLY:

- Powder products are normally delivered in bags, rather than boxes or buckets
- Bag weights are typically 12.5, 25 and up to 250Kgs
- These are delivered in multiples of the above weights up to 1000kgs on pallets

# Powder Systems



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80 x 12.5 Kgs  
Sacks Industrial  
Laundry  
Detergent  
Powder



Powder products are normally dispensed to a washing machine using one of three methods:

- Manual (Hand Dosed). One of the problems with hand dosing are the chemical hazards associated (e.g. Corrosive)
- Powder Dosing Machines where detergent powder is automatically dosed into the washing machine from a hopper
- Stock Solution Systems where detergent powder is manually made into a stock solution of known strength. This stock solution is then fed into the washing machine upon demand.





The Original  
Dosing Kit



Automatic  
Powder Dosing  
Unit



- It is frequently cost-effective to supply wash chemicals in both powder and liquid form
- This is why we combine Powder and Liquid Systems
- Hence the name Combination Systems

# Latest Dosing Systems

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- With the environment in mind the latest chemical dosing systems on the market now incorporate up to date computer pump control and Management information
- The newest systems can now give precise dosing of chemicals to the washing machines using Flowmeter and pulse counters



- Accurate dosing means that only sufficient chemical to clean the linen is being used.
- This means that the issue of unused product due to over dosing is no longer a problem and the amounts of chemical in the washing machine effluent is reduced.



- Conversely if chemicals are under dosed, the linen is not being cleaned properly
- This would lead to rewash the linen, which uses more water, steam and chemicals
- This is not good for the environment

# Latest Dosing Systems



Liquid Dosing System with Management Information System

# Latest Dosing Systems



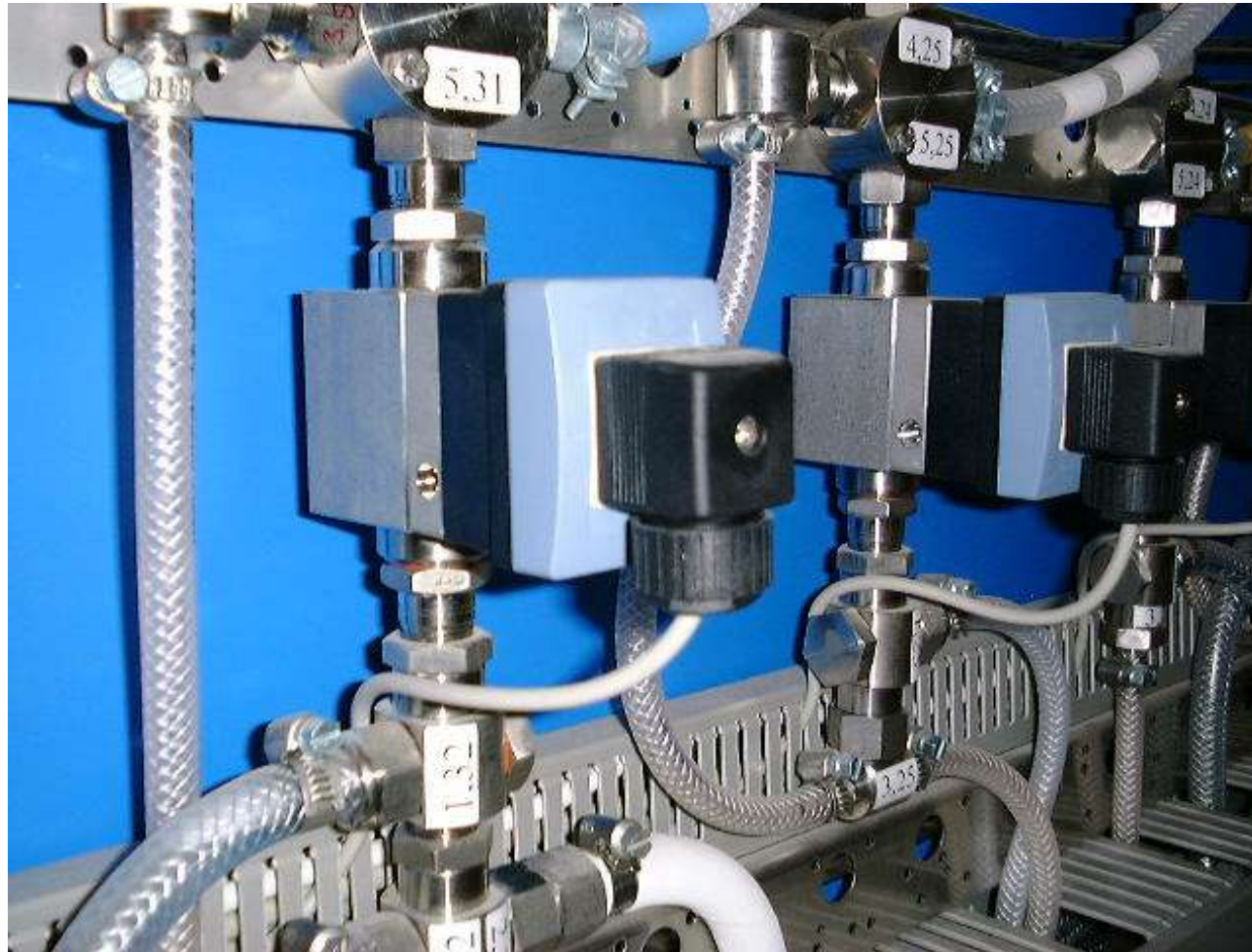
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MIS operator  
information screen



# Latest Dosing Systems



MIS controlled dosing system

# Latest Dosing Systems



MIS controlled dosing system



- Management Information on the very latest systems now enable us to give more than just give precise chemical dosing to a washing machine
- We can also monitor washing machine water and steam usage
- The correct pH for water effluent and linen being discharged from the washing machine can be determined.
- Thermal Disinfection, according to the DHSS regulations, can be proven

- Careful monitoring of all parameters enables the washing machine to be stopped or held until all these parameters are satisfied
- The Management Information Computers can now also give an efficiency report to provide a visual indication of how well the wash isle is being run. Reports can be customised to suit the customer

# Latest Dosing Systems



MIS – machine monitoring/report generating



- The latest technology enables us to equip the Laundry production team with the information that they can use to run their laundries economically and efficiently and reduce their impact on the environment