



## Continuous dosing system for Cold Pad Batch (CPB) dyeing

Perfect preparation of dye chemical solution for high  
quality, reproducible dyeing

Feeding a precisely prepared dye-chemical solution i.e. dye liquor into the trough of a Cold Pad Batch dyeing machine is an essential first step for producing fabric that is evenly dyed with minimal shade variations.

One common way dyers prepare dye liquor is with two-part metering pumps. Others use continuous dosing systems. Hence dyers face a dilemma: which is better – a two-part metering pump, or a continuous dosing system?

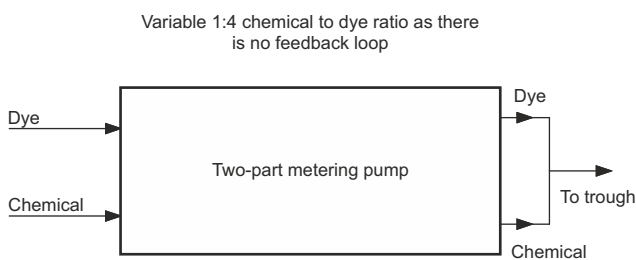
## Working of a two-part metering pump

For example, for a ratio of 1:4 of chemical to dye:

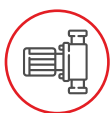
- The colour and chemical are dispensed by a metering pump based on the total liquor replenished into the trough
- However, this 1:4 ratio varies – it may be slightly higher or lower as there is no feedback loop
- Due to this variability, the dye shade is negatively impacted in terms of uniformity of tone and hue

At times this might also lead to the depth variations, along the length of meterage dyed.

### Conventional two-part metering pump (without feedback loop)



### Disadvantages



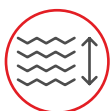
Single pump: no independent control over dye or chemical flow



Constant fluctuation in 1:4 chemical to dye ratio: may be slightly higher or lower as there is no feedback loop

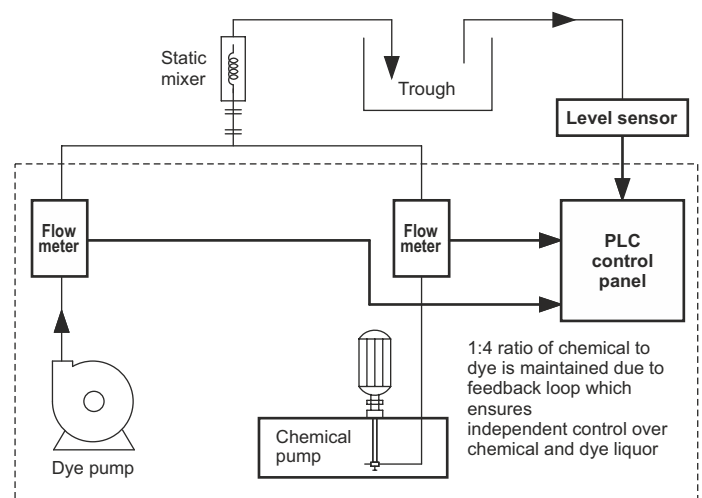


Dye shade is negatively impacted in terms of uniformity of tone and hue



Can also lead to colour depth variation

### A.T.E.'s continuous dosing system (with feedback loop)



### Advantages



Two pumps: enables independent control over dye and chemical flow



Both the dye and chemical pumps are regulated through a feedback system which ensures the 1:4 ratio of chemical to dye is maintained consistently



Ensures consistent and uniform shade



Prevents colour depth variation

## How continuous dosing works

For the same ratio of 1:4 of chemical to dye:

- Variability is eliminated through tight synchronisation between the two pumps with the help of the PLC and feedback from the flow meter
- This enables independent control over both the chemical and dye liquor
- Result: the ratio of 1:4 is maintained constantly

## Additional benefits



Constant 1:4 chemical to dye ratio by controlling the speed of a chemical pump with a VFD (Variable Frequency Drive), in sync with the dye pump



Level sensor feedback from the trough ensures that there is no overflow of liquor



Little to no maintenance cost

## High quality components



Complete SS 304 skid



SS body centrifugal pump with motor for dye



Flow switches to avoid the dry running of the pumps



Progressive cavity/gear pump with motor for chemicals



PLC with HMI and VFD wired with switchgear in a fabricated SS304 control panel



Manual valves for cleaning and sampling



Flowmeters

**A.T.E.'s continuous dosing system for CPB dyeing ensures consistent and uniform shade**

## Complete dosing skid and control panel



## Pumps and flow meters



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