

4.6. The main differences between a washer extractor and a continuous batch washer (CBW) for soil and stain removal

For many years the laundry industry relied on front loading or side loading washing machines with no spin capability. Work was then transferred to a separate high speed centrifuge – the hydro-extractor – which reduced the moisture content down to a level at which finishing became economic and productive.



The advent of the washer extractor in the 1950s made it possible to wash and extract in the same machine, eliminating the double handling and separate hydro. It was also possible to introduce an inter-spin after the first rinse so that most wash cycles could reduce the number of rinses by one. This meant that a one night hotel sheet for example needed only two rinses, so the washer extractor offered considerable savings in running costs. The average consumption of the old washing machine was reduced from a typical 45 litres per kg down to below 30 litres per kg.



The next big step forward came with the design of the continuous batch washer. This consisted of a tube some 1.5 metres in diameter divided into compartments by a helical scroll rather like an Archimedean screw. Instead of rotating completely like a washer extractor the CBW rocked through an arc to create the necessary mechanical action.

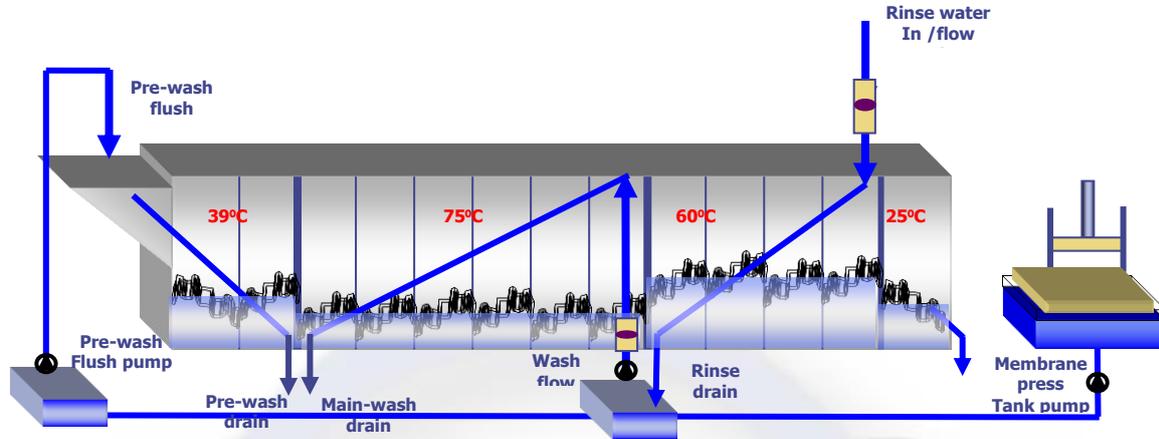
Every three minutes or so the CBW would rotate through one complete revolution and the work in each compartment would be cleanly transferred one compartment further forward. A fresh dry load of soiled linen would be introduced at the front end and a load of washed and rinsed linen would be discharged from the back end. Most of the compartments were perforated so that water could flow counter current to the direction of work through the machine. Un-perforated sections were used to separate the main-wash compartments from the rinse compartments and from the final special treatment compartment in which souring or starching would be carried out.

It was found that water consumption could be reduced down to 8 litres per kg and the entire volume laundry industry in Europe initially and then the US and the rest of the world quickly adopted the CBTW as the industry workhorse.

Recent designs of CBTW have exploited even more efficient concepts to achieve consumption figures in the range 3.5 – 5.0 litres per kg for flatwork and garment CBTWs are now following the trend.

The main differences between the CBTW and the washer extractor are:

The CBW is a continuous producer, churning out a batch of freshly washed linen for finishing every 85 – 300 seconds. This means that the task of the laundry manager and laundry supervisors is to smooth out the bottlenecks in the production flowline and act quickly to resolve any quality issues.



The CBTW is far less flexible in its programming capability than a bank of washer extractors. Individual machines can be programmed independently whereas the CTW has a fixed stage time and water flows. Detergent dosages can be varied to suit different classifications but the effects will be felt on adjacent batches. It is not wise to process coloured work in a CBTW containing white work – just leaving two compartments empty between coloured and white is not sufficient to prevent tinting of the whites or accidental bleaching of the coloured.

At 6 litres per kg the CBTW uses less than one third of the water of the washer extractor and only half the heat energy. Recent designs of CBTW do even better.