

Tecnorama

Automatic system to increase dyehouse productivity

Dos&Dye is a completely automatic system composed by a Dosorama dispensing machine and a Dyrama robotized dyeing machine able to work autonomously 24 hours a day, 7 days a week.

Conceived and manufactured by Tecnorama, Prato/Italy, it can manage and perform all laboratory dyeing cycles increasing the productivity both for laboratory and bulk. In the laboratory, it reduces the dyeing trials to obtain the exact recipe thanks to the complete reproduction of dyeing cycle exactly as in the bulk machines in preparing, dyeing, soaping and washing.

The right first time result grants the exact recipe coming from the laboratory in order to drastically reduce the corrections after dyeing and the re-dyeing into bulk machines with a huge saving of the time dedicated to a production batch and the increase of the whole productivity of the dye house.

Thanks to the optimization of production

processes and to the overcoming of those limits inherent to manual management of the laboratory, the system allows water and en-

ergy consumption to be reduced for an environment friendly approach and for a considerable saving of time and money. ■

Dos&Dye system
(Tecnorama)



Vald. Henriksen Jiggers – ahead of the tension

Various industry-standard systems are available to measure fabric tension in textile finishing machines. The sensors used are usually referred to as load-cells. The measured tension value is compared with a set value and the drive system reacts to bring the tension level towards the set value. The tension situation in a jigger is by definition a highly dynamic one, with the giving roller continuously decreasing in diameter and the receiving roller continuously increasing in diameter. To maintain a set value for the tension the required difference in torque between the motors driving the 2 main rollers will be continuously changing. The continuous action-reaction chain in the case of tension measurement is the reason that the system will be behind the facts at any time. The resulting continuous tension fluctuations are the source of crease marks in dyeing.

The system by Vald. Henriksen B.V., Oldenzaal/Netherlands, does not measure the tension but creates it. For this purpose the fabric thickness is used. When loading the machine, a default value for fabric thickness is entered. After loading, the batch diameter on one of the main rolls inside the machine is calculated based on the default value of fab-

ric thickness. Before starting the process however, the machine will calculate the exact thickness in wet condition. The first calculation is carried out at the start of the first passage at very low speed resulting in a thickness with an accuracy of 0.01 mm. This information is translated into a highly accurate radius of both giving and receiving main roller. The tension build-up by running over various rollers and an expander between the main rollers for any combination of fabric type and speed is known with reasonable accuracy. Correcting for this tension, the drive system creates the combination of required speed and tension by continuously calculating the moments of force for each of the 2 motors. Trials whereby the tension was still measured as reference have shown that the actual value is never further away from the set value than about 0.5 daN. Fluctuations however, and therefore also crease marks, are a thing of the past.

Preventing tension fluctuations was the design aim of the current drive system. There is an important additional benefit enclosed in the algorithm for the thickness calculation that further enhances the quality of the system. During running at production speed the

calculation of thickness continues, all be it with a lower accuracy than the first calculation. The algorithm is able to calculate any shrinkage or elongation and in an early stage of the passage it is able to predict the final length of the batch. This information is used to improve the reproduction of passage time, to fine tune continuous dosing of chemicals and to automatically stop the machine at the exact position for sample taking and end of passage.

A Henriksen jigger controls the process parameters temperature, time, concentration and liquor ratio within extremely tight tolerances. Because of its advanced features to control all aspects of process and fabric tension, the jigger is a full scale production machine that can compete with any continuous dyeing system. In addition, a jigger can also dye just a few hundred meters in an economic way.

The machines have a very wide range of applications including pre-treatment of cotton and blends, degumming and dyeing of silk, dyeing of aramid fibers like Nomex and Twaron, highly efficient application of optical brighteners and dyeing of extremely low weight viscose and acetate fabrics. ■