TECHNICAL TUESDAYS

TOPIC: Roller Hank Dyeing Machine

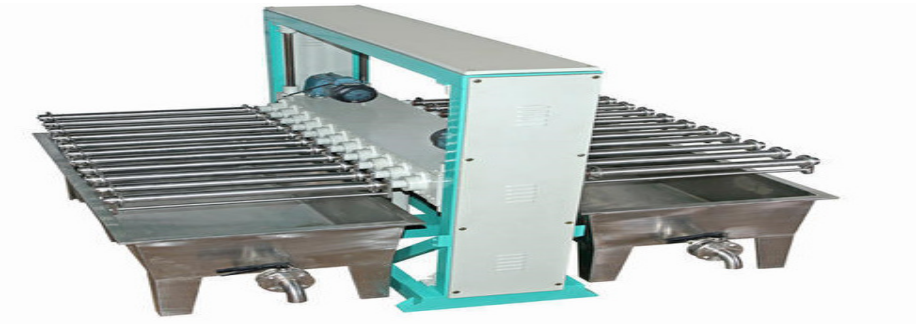
REF: TT/ Dec 2016/ WK 1

What are roller hank dyeing machines and their characteristics?

The roller hank or also called hank dyeing machine is used to dye yarn in the hank form.

The rollers of the machine can rotate in clockwise or anticlockwise directions with the help of gears arrangements. The machine is fitted with a stop /start system to control the rollers movement.

The hanks loaded on rollers can be lowered in the tank or lifted out by lifting or lowering the frame with the help of hydraulic system. The speed (RPM) of rollers can be varied by changing the gears and the rotation cycles are controlled by timers which change the direction of movement of the motors.



Advantages of roller hank dyeing machines:

- Roller dyeing machines are simple in design and operation.

- Cost of the machine is inexpensive.

- Almost all type of dye classes such as direct, reactive, vat, naphthols, pigments, soluble vats can be applied to cotton, mercerized cotton or rayon filaments.

- All types of yarns can be processed such as cotton, mercerized cotton, viscose filament or even silk can be processed. The machines with simple modifications can also be used to produce tie and dye effects in bigger lots particularly in cellulosic substrates.

- The machine possess a high output capacity depending upon the number of rollers, which could be from 1 to even 10 rollers, and each roller can handle from 2 to 4 kg of yarn.

Disadvantage of roller hank dyeing machines:

- Only 40-50% of yarn takes part in dyeing process whereas the rest is exposed to atmosphere, therefore hydrosulphite consumption is high in these machines.

- The machines are open type, therefore maximum dyeing temperature is 95-98 ^{0}C.

- Liquor ratio is high, generally 1:15 to 1:20, therefore chemicals, steam and water consumption is comparatively high.

- The liquor ratio increases with heating in case of direct injection of steam.

- Yarn entanglements takes place during running of the machine, which reduce the hank to cone winding efficiency.

- Only limited automation are possible on this machinery.

- The dyeing process is carried out under atmospheric pressure with the absence of liquor pressure to aid in the process, therefore the color penetration in hard twisted materials is found to be poor.

Wishing you a great week ahead!

Technical Tuesdays is a knowledge sharing initiative by Resil Chemicals Private Limited

arc@resil.com | www.resil.com