

Drawframe machine



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Introduction The draw frame in a textile mill is unavoidable in yarn spinning as fibers need to be kept side by side termed as parallelization of fibers in textile technology. This is done as we see that most of the fibers at carding stage are so fast that there is little or no fiber parallelization. Even though modern carding machines have using the auto leveler still there can be some unevenness along the slivers. These two issues will affect the quality of the yarn. The draw frame machine is the last machine which can improve the yarn quality in the yarn manufacturing process.

The tasks drafting and doubling are the objectives of the draw frame machine in order to improve the fiber orientation and sliver uniformity respectively. Removal of hooks and dust also can be carried out by the machine, at a significant amount. Objectives To study the material path, objectives and drafting system of the draw frame machine. Procedure * Study the important parts and their function of the machine * Observed and draw the material path * Roller drafting system was observed * Compare the differences between modern and conventional machine

Draw frame material path (picture) Tasks of the draw frame * One of the main tasks of the draw frame is improving the evenness over short, medium and especially, long terms. Card slivers fed to the draw frame have a degree of unevenness that can not be tolerated in practice. Doubling is the process of combining two or more slivers usually from carding engine to deliver a single sliver. In the draw frame 6-8 slivers are combined to give one sliver. During the doubling process it is expected that the non-uniformity in the card sliver will be even-out and a uniform sliver will emerge. Drafting is a process where the weight per unit length of the input sliver is reduced.

During the drafting process, fiber parallelization also takes place. The drafting and doubling processes are achieved by passing the slivers through rotating rollers. The fluted bottom rollers are steel rollers while the top rollers are synthetic rollers heavily weighted on the bottom rollers by means of springs. The bottom rollers are run at increasing speeds starting from the back rollers to the front rollers. In addition to the improving evenness, doubling also provides a degree of compensation of raw material variation by blending. The result is exploited in particular in the production of blended yarns comprising cotton/synthetic or synthetic/synthetic blends. At the draw frame, metering of individual components can be carried out very simply by selection of the number of slivers enter the machine * Dust is steadily becoming a greater problem both in processing and personnel involved. It is therefore significant to remove dust in every possible step in the process.

Dust removal can only be carried out where there is fiber/fiber, fiber/metal friction. Since dust articles adhere relatively strongly to the fibers. A high performance draw frame with a sufficient number of suction point is a good dust-removing machine. * Sliver formation and coiling is also a important part of the draw frame process using sliver trumpet and calendar roller this functions were done. Differences of drafting systems between modern and conventional draw frame * Modern draw frame machine have helical flute where the conventional machine have horizontal flute.

Conventional modern (horizontal) (helical) * In conventional drafting system 4/4 system is used where in modern drafting system 5/4 system is used. * In the modern machine the flutes are inclined and in conventional machine flutes are arranged in straight line. * In the conventional system lever type

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pressure arm system is used and in modern system spring load system is used. In addition to this the modern draw frame machine have the followings

- * Single prevention:- if for whatever reason a sliver get exhausted or broken the machine will automatically stop
- * Colour light system:-indication at which specific point the problem is in the machine which cause into stop
- * Red-mechanical problem
- * Green-sliver break
- * White-power on no run
- * Blue-over heat
- * Orange-no can
- * Automatic can changing:- the machine can be programmed to deliver a specific length of sliver on to the two can after which the cans are automatically changes to new cans.

Discussion