



# Functions of the Carding Process and Carding Machine

Carding is the second stage of spinning and is frequently referred to as the "heart of the spinning process." At this stage, the material fed into the carding machines is processed to produce sliver, which are essentially the uniformly produced fiber strands. Following the development of sliver from the carded cotton, the carding step is all about the individualization of fiber from the cotton material entering from the blowroom. Spinning mills must carefully choose, set up, and run the carding machine(s), as well as employ quality-assured [spinning cans](#), because the quality of the carding process directly affects the quality of the finished yarn. Below is a thorough explanation of all you need to know about the carding procedure, including the main duties of carding equipment:

## What Is Carding, Exactly?

The majority of fibers collected from the blow room are clumped and locked. In spinning mills, the carding procedure aids in breaking up these blocks or clumps so that the fibers are positioned parallel to one another. During carding, many fiber combinations and colors can be produced. The presence of moisture and friction, which might cause more sliver breakages, are minimized with due care. It is ensured that the yarn quality meets manufacturers' requirements through expertly managed carding procedures.

## Cotton Fiber Preparation for Subsequent Steps of Spinning

Preparing cotton fibers for spinning (as well as woolen fibers, for that matter) involves a number of procedures. Two of these stages are carding and sketching. Carding is specifically done to increase processing efficiency levels and produce the highest-quality yarns. Mills should constantly employ cutting-edge carding machines from Manufacturers like Trutzschler, Saurer, LMW, Rieter, and other similar trustworthy names in order to maximize the production of carded sliver. For effective carding, quality-assured HDPE spinning cans with excellent dimensional accuracy are also necessary.

## Silver that has been Carded and Combed

Both combed and carded sliver are carded, but it's crucial to understand the distinctions between the two. The fibers move through two machines that produce carded sliver, which is produced by separating the fibers smoothly, removing impurities, and forming sliver (by condensing the fiber strands). In contrast, combed sliver is created by running the fibers through a machine with metallic, straight teeth. This guarantees that the fibers in a line are laid out in parallel. The evenness of the spun thread can be considerably improved through combing.

## Carding's significance in the spinning process

The carding procedure removes all of the neps produced during the mixing and blowroom phases in addition to opening the cotton fiber tufts and placing them in the required pattern (parallel). The carding machines methodically convert the cotton web into a uniform sliver. Very short fibers that can't be spun into yarn are cut out. Another incredibly significant outcome of the carding process is fiber mixing.

In order to produce high-quality yarn, cotton must be kept as clean as possible. At the carding stage, this is accomplished. The greatest carding machines can often guarantee up to 95% fiber cleanliness. When the blowroom and carding phases are combined, the cleanliness can reach 99%. (providing all steps are carried out correctly). The percentage of these impurities in carded sliver can be as low as 0.04–0.05%, despite the fact that it is almost impossible to remove all foreign material from the fibers.

The delicate quality of the sliver created at this point must be taken into consideration by carding machine operators in particular and spinning mill operators in general. It is difficult to overstate the value of smooth, cautious material handling, which in turn highlights the necessity of employing mechanically robust card cans with outstanding stability and mobility. [Top spinning can producers](#), like Jumac Cans, have a large selection of customized carding cans in their portfolio thanks to technology and innovation in the textile sector, and they offer excellent value for money.

## Potential Issues With The Carding Process

The advantages and intent of carding have very well previously been stated. But, occasionally, there could be some issues with the quality. They include the development of neps, the

buildup of trash, and the emergence of holes in the card web patches. Sliver variation may gradually rise if the carding machines are not regularly maintained and serviced. Also, it is frequently necessary to manually check the weight of the silver. This guarantees the highest possible quality for the finished yarn.

## **The Function Of Carding Machines**

Perfect carding is crucial for making the entire spinning process more seamless than ever, from maximizing spinning efficiency levels to optimizing yarn quality. The primary purposes of a carding machine are essentially the same for practically all types of fibers. Let's focus on these over here instead:

After fiber individualization, the carding process takes care of the parallelization requirements. The remaining neps are then separated (or discarded), and fiber impurities and foreign objects are taken out. The fiber blending and orientation are completed once the short fibers have already been removed. The slivers are finally created in the carding machine, and they are then moved on to the next step, called draw framing.

Given the significance of carding in the overall process of producing textiles and yarn, it is only logical that top OEMs are always developing cutting-edge features for their carding equipment. To fulfill the specific spinning needs, sliver can suppliers also offer a variety of card can types. It's crucial to make sure the cans selected are completely compatible with the card readers being utilized. Otherwise, there is a very real possibility that there may be mechanical issues, which would result in productivity loss.

## **Understanding The Structure Of The Carding Equipment**

The design of carding machines varies depending on the application procedure in which they will be employed. The physical characteristics of jute carding and cotton carding machines differ in particular. Moreover, cotton carding uses two machines (a beaker card and a finisher card), as opposed to one for jute.

Carding machines often have a lot of unique units. They include the pipe ducts, the licker-in, the main cylinder, the stripping device, the flats, grid plates, transport and calendar rollers, and others. These are used to input the fiber into the machine.

## **Conclusion**

Three operations—stripping, raising, and carding—are combined during the carding stage. As a result, the likelihood of sliver deformities and other defects is reduced, and the material is processed uniformly in the machine.

Sagging and/or uneven cotton webs, low nep-elimination efficiency, sliver breakage, an increase in U%, feed roller mapping, and other issues can all result from errors in the carding stage. These issues therefore have an impact on the final product's quality (studies have indicated that the carding stage is responsible for about 90% of the cleaning efficiency). To ensure that the sliver handling process is safe and secure, mills must ensure that the carding equipment is operating efficiently and that HDPE spinning cans are being used.

In this regard, it's also critical to emphasize how crucial it is to purchase the necessary card cans from reputable suppliers (as well as using branded machinery).

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