Knitting machine

The knitting machine, sometimes called knitting frame, knitting loom, or hand knitting machine, is used to produce knit fabrics on a fixed bed of hooked needles. Knitting machines can be hand powered or motor assisted. Pattern stitches can be selected by hand manipulation of the needles, or with push-buttons and dials, mechanical punch cards, or electronic pattern reading devices and computers.

Types

There are domestic and industrial models, with either flat or circular beds that produce rectangular or tubular fabrics. Double bed machines have two flat beds facing each other, in order to produce purl and plain rib fabrics plus a variety of multi patterns. Ribbing attachments can be added to single bed machines to achieve a similar result.

Late 20th Century domestic/studio/home models typically use up to 200 latch hook needles to hold the stitches in a standard or bulky size needle. A carriage or cam box is passed across the bed of needles causing the needle movements required to produce each next stitch. By various selection methods, e.g. punch cards, particular needles can be caused to travel by alternate pathways through the cam box. Thus needles will knit or not, and the unknitted yarn portions will lie under (slip stitch) or over the needle or be held in the needle hook (tuck stitch). Needles can be placed in holding position to allow short row shaping.

Most of these machines can knit two colour "fair isle" patterns automatically, and have machine stitch patterning features such as plating and knitweaving. Plating refers to knitting with two strands of yarn that are held in such a way that one is in front of the other. Plated effects can be particularly striking in a ribbed fabric. Knitweaving refers to a technique in which a separate piece of yarn, often heavier than the knitted fabric, is carried along and caught between stitches to produce an effect like weaving. With knitwoven fabric, the purl side (usually the wrong side) is the right side of the fabric. With the addition of a lace carriage, stitches can be transferred from one needle to the next. The yarn passes through a tensioning mechanism and down through the knit carriage, which feeds the yarn to the needles as they knit.

Domestic knitting machines use the weft knitting method which produces a fabric similar to hand knitting. Knitting proceeds more quickly than in hand knitting, where (usually two) straight needles are held in the hand and each stitch is manipulated individually across the row. Knitting machines work an entire row of loops in a single movement.

Advantages

The fabric produced using a knitting machine is of a more even texture than hand-knitted fabric, which is particularly noticeable on large areas of plain stocking stitch. This is an advantage, and saves a considerable amount of time. Many people prefer the look of hand knitting and skilled hand knitters can produce quite even fabric, while machine knitters need little skill to produce a good fabric as the machine tension does the job for them. Some stitch patterns (e.g., tuck stitches) are much easier to produce with a knitting machine, while others (e.g. garter stitch) are much easier to produce with handknitting. The Standard 200 bed knitter can knit the finest yarns up to a good sportweight while the heavier yarns knit better on a bulky knitting machine.

Other Methods

Knitting can be performed on other tools which have no moving parts, for example a knitting nancy and larger tools of that family. Stitches are formed by lifting loops over a peg or nail, one stitch at a time, to produce flat or more often tubular fabric. These non-

machine knitting tools have been called many different names, including knitting looms or knitting frames,which can lead to confusion with knitting machines.