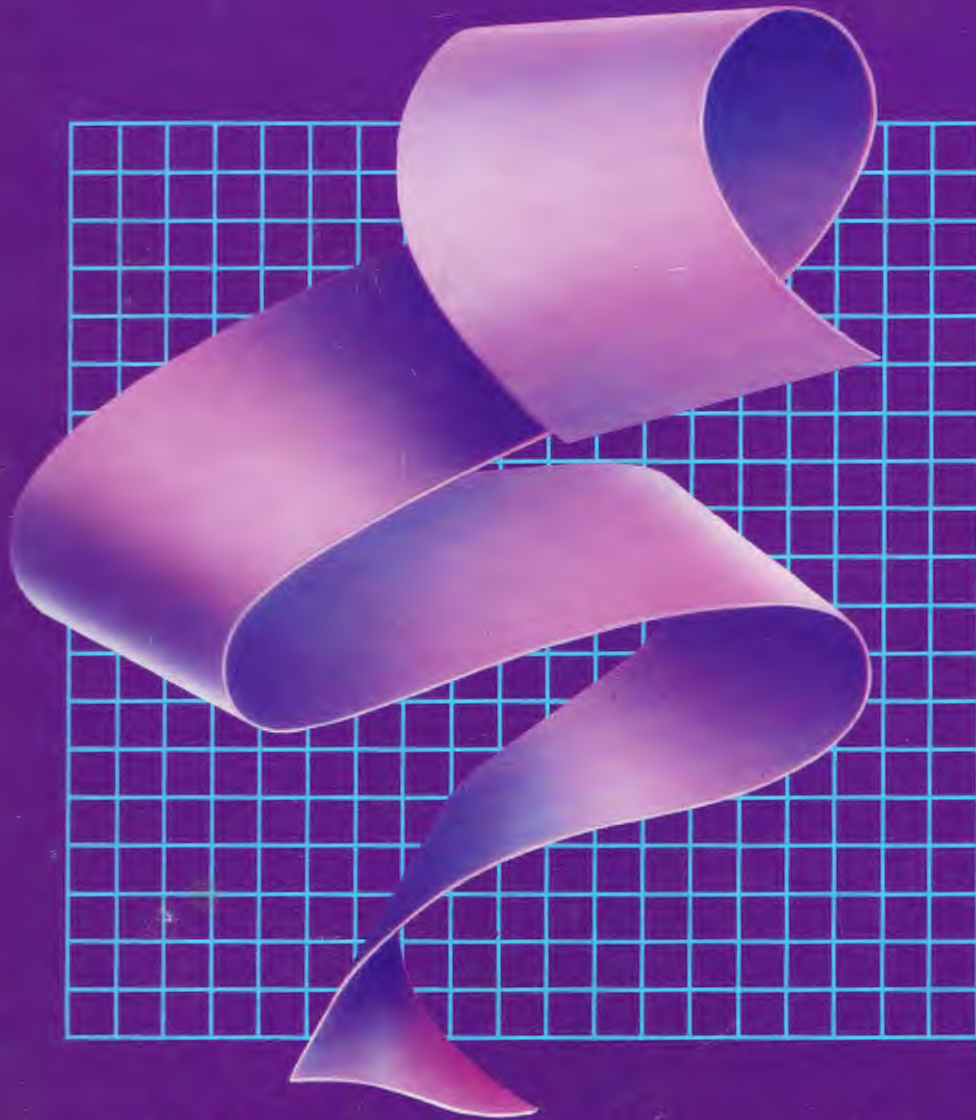


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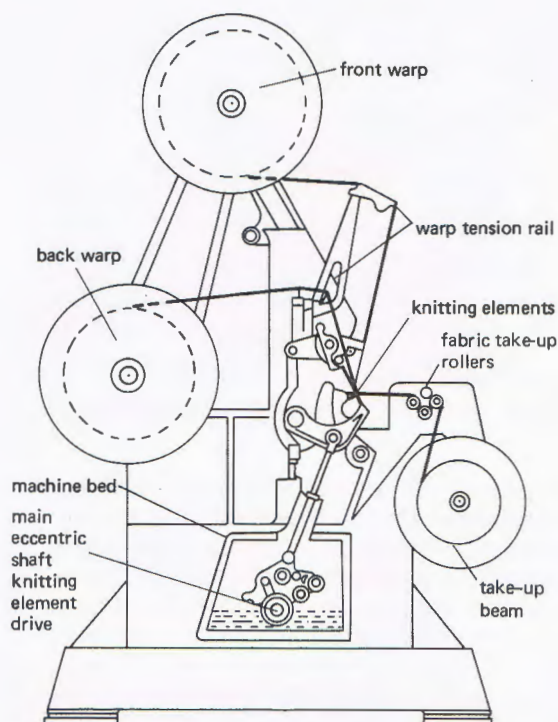
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23.24 Diagram of tricot knitting machine.

napped to give a soft, attractive appearance and hand. If done correctly, these processes do not reduce fabric strength.

WARP KNITTING

The term *warp knitting* is also adapted from weaving technology. Warp knitting differs from weft or filling knitting in that the loops are formed in a vertical or warpwise direction and yarns lying side by side are interlooped. Machines used for warp knitting tend to look somewhat like weaving machines. All of the yarns are placed on beams and are located behind and above the actual knitting area. All yarns feed into the knitting area at the same time. Each yarn is manipulated by one specific needle as the interlooping proceeds; however, guide bars control the placement of the yarn, and the particular needle forming the loop may vary from one interlooping action to the next. Jacquard attachments can be used to provide for special needle controls and the making of highly patterned warp knits. Because of the knitting process used in warp knitting, the lo-

cation of the yarn supply, and the interlooping of parallel yarns, the machines used are sometimes called *knitting looms* (Fig. 23.24).

Essentially, warp knitting is a system for producing fabric that is flat, has straight side edges, and is manufactured rapidly and in large quantities. Warp knits are classified according to the type of equipment used and to special characteristics of the resulting fabrics. The types are tricot, raschel, milanese, and simplex. The most common types are tricot and raschel.

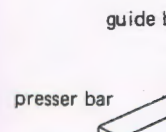
Warp-knit fabrics have some elongation or stretchability, although it may be less than for filling knits. The amount of extension is influenced by the type of construction (such as single bar tricot, double-bar tricot, raschel); the tightness of the knitting (the tighter the knit, the lower the amount of stretch); finishing techniques, which can impart good dimensional stability; gage (number of needles per unit of width); and type of yarn (for example, core-spun stretch yarns, complex yarns with little or no stretch, single or ply yarns of high dimensional stability).

The strength of warp-knit fabrics may be increased by using yarns of strong fibers, yarns of balanced construction, and a high gage with strong, fine yarns. A combination of yarns of different fibers, or of different types of yarns (simple, ply, complex), and space between loops affects the strength of the fabric.

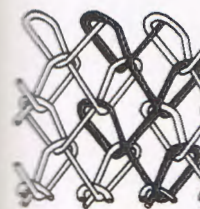
Tricot Knits

Tricot knits originated in England during the latter part of the eighteenth century. Plain or decorative tricot fabrics can be made on the same machine; the difference is determined by the patterns used in the interlooping operation. This means that a variety of knit fabrics can be manufactured at the same general price level and at the same speed. The interlooping of the adjacent yarns can be controlled so that yarns lying next to each other are interlooped or yarns lying a few yarns away from each other can be interlooped. This flexibility helps to provide the different types of tricot knits and the resulting variety in fabric appearance and character.

Tricot fabrics, like weft knits, can be made using either latch or beard needles. However, beard needles are the most common for tricot knitting. Therefore, the steps for making a tricot are diagrammed (Fig. 23.25A) showing beard needles.



23.25A Diagram of s
formation in tricot we
knitting.



23.25B *Left: Single guide-bar diagram.*

1. Step 1 shows knitting possible would be complete knitting machine placement of helps control sinker that he formed loops a spring type of 23.6). In step position, the p the needles, an formed fabric.
2. The guide bar last loop on the place the yarn from the far needle.
3. The yarn is a needles are sta