**Lecture 9: Twill Weave**

**Definition of Twill Weave:**

A weave that repeats on *three* or more picks and produces diagonal lines on the face of the fabric is called *Twill Weave.* Twill Weave also can be defined as “The order of interlacing which causes diagonal lines of warp and weft floats to be formed on the cloth.

**Features of Twill Weave:**

* Diagonal lines are seen on the fabric.
* These twill lines are produced by letting all warp ends interlace in the same way but displacing the interlacing points of each end and by one pick relative to that of the previous end.
* Twill lines are formed on both sides of the fabric (in opposite direction).
* Smallest repeat is 3 × 3.
* It is common practice to use straight draft for producing twill fabric.
* Three or more heald shafts are required.
* Diagonal lines can be formed right to left or left to right.
* Greater weight than plain woven fabric due to closer settings of yarn.

**Factors affecting the Prominence of twill weave:**

I) Characters of weave:

* Twill line of short floats  Less prominence twill line.
* Twill line of long floats 🡒 More prominence but the produced fabric is of less strength, creates looseness as less interlacement.

II) Characters of yarn:

* Twill line of coarse and soft twisted yarn 🡒 more prominence.
* Twill line of fine and hard twisted yarn 🡒 less prominence.
* Twill line of folded or ply yarn 🡒 more prominence.
* Twill line of single yarn 🡒 less prominence.

III) No. of ends and picks per inch /Thread per inch:

* More no. of ends and picks per inch 🡒 more prominence.
* Less no. of ends and picks per inch 🡒 less prominence.

IV) Direction of twill in relation to twist direction:

* Same direction 🡒 less prominence.
* Opposite direction 🡒 more prominence.

**Classification of Twill Weave:**

I) According to the direction of the twill lines on the face of the cloth

* Z Twill
* S Twill.

II) According to the nature of twill weave

* Single warp or Single weft Twill
* Expanded Twill
* Multiple Twill

III) According to the face yarn

* Warp faced Twill
* Weft faced Twill
* Double faced Twill

**Factors Affecting the Prominence of Twill Weave:**

* 1. Character of weave.
     1. Twill line of short float- less prominence of twill line.
     2. Twill line of long float- more prominence of twill line, weaker fabric, create looseness.
  2. Character of Yarn.
     1. Twill line of folded or ply yarn- more prominence.
     2. Twill line of single yarn- less prominence.
     3. Same direction of twist and twill line- less prominence.
     4. Opposite direction of twist and twill line- more prominence.
     5. Coarser and soft twisted yarn- more prominence.
     6. Finer and hard twisted yarn- less prominence.
  3. Number of ends and picks per inch
     1. More EPI and PPI- more prominence.
     2. Less EPI and PPI- less prominence.
  4. Direction of twill in relation to twist direction:
     1. Same direction 🡒 less prominence.
     2. Opposite direction 🡒 more prominence.

**Derivatives of Twill Weave:**

* Zigzag Twill
* Herring Bone Twill
* Diamond Design
* Diaper Design
* Broken Twill
* Stepped Twill
* Rearranged Twill
* Elongated Twill
* Shaded Twill
* Combined Twill.