**Lecture 12: Twill Weave**

**Broken, Rearrange & Step Twill Design**

**Features of Broken Twill:**

* Broken twill is formed by a break in the continuation of the twill line at predetermined intervals.
* There is several system to produce broken twill.
* Usually the break will be at the centre of the repeat, with only one reversal, but more complicated breaks can be made.
* One divides the original weave into two halves and copies the first half unchanged, starting form the first warp end. The second half is copied in reverse order, starting form the last end.
* Normally straight draft is used.
* The pattern can be broken either warp or in the weft direction and no twill line will be generated.

Uses: Shirting, Suiting, designed fabrics etc.

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|  |  |  | x | x |  |  |  |  |  | x | x |
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|  | 2 |  | Z |  |  |  | Broken Twill | | | | |
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|  | Base Twill | | | |  |  |  |  |  |  |  |
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|  |  |  |  |  | x | x | x | x |  |  |  |  |  |  |  | x | x | x | x |
|  |  |  |  | x | x | x | x |  |  |  |  |  |  |  | x |  | x | x | x |
|  |  |  | x | x | x | x |  |  |  |  |  |  |  | x | x |  |  | x | x |
|  |  | x | x | x | x |  |  |  |  |  |  |  | x | x | x |  |  |  | x |
|  | x | x | x | x |  |  |  |  |  |  |  | x | x | x | x |  |  |  |  |
|  | x | x | x |  |  |  |  | x |  |  |  | x | x | x |  | x |  |  |  |
|  | x | x |  |  |  |  | x | x |  |  |  | x | x |  |  | x | x |  |  |
|  | x |  |  |  |  | x | x | x |  |  |  | x |  |  |  | x | x | x |  |
| # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |  |  | # | 1 | 2 | 3 | 4 | 8 | 7 | 6 | 5 |
|  |  |  | 4 |  | Z |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 4 |  |  |  |  |  |  |  |  | Broken Twill | | | | |  |  |
|  |  | Base Twill | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |

**Features of Rearranged Twill:**

* In *Rearranged twill*, a single thread or group of threads of the base weave are taken and are arranged in a different order.

**Types of Rearranged Twill:**

* + Rearranging the yarn individually.
  + Rearranging the yarn group wise.
  + Cork Screw Weave.

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|  |  |  | x | x | x |  |  |  |  |  | x | x |  | x |  |  |  |  |  |
|  |  | x | x | x |  |  |  |  |  |  | x |  | x | x |  |  |  |  |  |
|  | x | x | x |  |  |  |  |  |  | x | x |  | x |  |  |  |  |  |  |
|  | x | x |  |  | x |  |  |  |  | x |  | x | x |  |  |  |  |  |  |
|  | x |  |  | x | x |  |  |  |  | x |  | x |  | x |  |  |  |  |  |
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|  | 3 |  |  |  | Base twill | | |  | Rearranging the yarn individually | | | | | | | | | | |
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|  |  |  | X | x | x |  |  |  |  | x | x |  |  | x |  |  |
|  |  | x | X | x |  |  |  |  |  | x | x |  | x |  |  |  |
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|  | x | x |  |  |  | x |  |  |  |  |  | x | x |  | x |  |
|  | x |  |  |  | x | x |  |  |  |  |  | x |  | x | x |  |
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|  | 3 |  | Base Twill | | | |  |  |  | Rearranging the yarn group wise | | | | | |  |
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**Types of Cork Screw Weave:**

* Even Number Cork Screw
* Odd Number Cork Screw

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|  | x |  |  | x | x |  |  |  |  | x | x |  | x |  |  |  |  |  |  |  |
|  | 1 | 2 | 3 | 4 | 5 |  |  |  | # | 1 | 4 | 2 | 5 | 3 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | Warp way move no(2) | | | | | | | | | | |
|  | 3 |  | Base twill | | |  |  |  | Odd Number Cork Screw | | | | | | | | | |  |  |
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|  |  |  | x | x | x | x |  |  |  |  |  | x | x | x |  |  |  |  |  | x |  | x | x | x | x | x | x |  |  |  |
|  |  | x | x | x | x |  |  |  |  |  | x | x | x |  |  |  |  | x |  | x | x | x | x | x | x |  |  |  |  |  |
|  |  | x | x | x |  |  | x |  |  | x | x | x |  |  |  |  |  | x | x | x | x | x | x |  |  |  |  | x |  |  |
|  |  | x | x |  |  | x | x |  |  | x | x |  |  |  | x |  |  | x | x | x | x |  |  |  |  | x |  | x | x |  |
|  |  | x |  |  | x | x | x |  |  | x |  |  |  | x | x |  |  | x | x |  |  |  |  | x |  | x | x | x | x |  |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 |  |  | a | b | c | d | e | f |  | # | 1 | a | 2 | b | 3 | c | 4 | d | 5 | e | 6 | f |  |
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|  |  | 4 |  | Base twill | | | |  |  | 3 |  | Base twill | | | |  |  | Even Number Cork Screw | | | | | | | | | | | |  |
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**Features of Stepped Twill:**

* Stepped Twill is produced by stepping continuous twill.
* The direction of twill line is kept same or opposite.

**Types of Stepped Twill:**

* + Warp Way Step
  + Weft Way Step
  + Warp and Weft Way Step

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|  | d |  |  | x | x |  |  |  |  |  | x | x |  | x | x |  | x | x |  |  | x |  |  | x |  |
|  | c |  | x | x |  |  |  |  |  | x | x |  | x | x |  |  | x |  |  | x |  |  | x | x |  |
|  | b | x | x |  |  |  |  |  | x | x |  |  | x |  |  | x |  |  | x | x |  | x | x |  |  |
|  | a | x |  |  | x |  |  |  | x |  |  | x |  |  | x | x |  | x | x |  | x | x |  |  |  |
|  |  | 1 | 2 | 3 | 4 |  |  | # | 1 | 2 | 3 | 4 | 2 | 3 | 4 | 1 | 3 | 4 | 1 | 2 | 4 | 1 | 2 | 3 |  |
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|  | Base Twill | | | | |  |  |  | Warp Way Stepped Twill | | | | | | | | | | | | | | | |  |
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|  | d |  |  | x | x |  |  |  |  | d |  |  | x | x |  |  |  |  |  |
|  | c |  | x | x |  |  |  |  |  | c |  | x | x |  |  |  |  |  |  |
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|  | Base Twill | | | | |  |  | Weft Way Stepped Twill | | | | | | | | | | |  |
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|  |  |  |  |  |  |  |  | a | x |  |  | x |  |  | x | x |  | x | x |  | x | x |  |  |
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| d |  |  | x | x |  |  |  | d |  |  | x | x |  | x | x |  | x | x |  |  | x |  |  | x |
| c |  | x | x |  |  |  |  | c |  | x | x |  | x | x |  |  | x |  |  | x |  |  | x | x |
| b | x | x |  |  |  |  |  | b | x | x |  |  | x |  |  | x |  |  | x | x |  | x | x |  |
| a | x |  |  | x |  |  |  | a | x |  |  | x |  |  | x | x |  | x | x |  | x | x |  |  |
| # | 1 | 2 | 3 | 4 |  |  |  | # | 1 | 2 | 3 | 4 | 2 | 3 | 4 | 1 | 3 | 4 | 1 | 2 | 4 | 1 | 2 | 3 |
| Base Twill | | | | |  |  |  |  | Warp and Weft way Stepped Twill | | | | | | | | | | | | | | |  |
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