

Knitting Technology

Module - 2 : FAQ

Q1 Consider Fig. 11 and recall the effect of tuck and float stitches on fabric dimension (2.1.1.1 to 2.1.1.3).

- Would the resultant fabric be narrower than/wider than/of same width as the one made without tucks and floats?
- Would the resultant fabric be thinner than/thicker than/of same thickness as the one made without tucks and floats?
- If the tuck stitch is removed and only the floats retained, would the resultant fabric be thinner than/thicker than /of same thickness as the one made without floats and would the resultant fabric be narrower than/wider than /of same width as the one made without floats?
- If the float stitch is removed and only the tucks retained, would the resultant fabric be thinner than/thicker than /of same thickness as the one made without tucks and would the resultant fabric be narrower than/wider than /of same width as the one made without tucks?

Ans.:

- Nearly same overall width with localized distortion
- Thicker
- Narrower but of nearly the same thickness
- Wider and thicker

Q2 Consider Figs.12 and 13a and relate each part of the full loop to its projection on the XZ plane. Repeat this exercise for the Fig.13b as well.

Ans.: The concavity of the projections on XZ plane is caused by the curved needle and sinker loops. The links joining two adjacent concave curves result from the projection of connecting loop arms.

The convex lines on the YZ planes are projection of loop arms while the connecting portions of two adjacent convex curves result from the needle and sinker loops.

Q3 If instead of the technical front side as in Fig.12, the technical back side of a plain single jersey fabric is exposed to the viewer then how would the projection of the wale line and the course line respectively on the XZ and YZ planes look like?

Ans.: They would just be inverted.

Q4 If two yarns, one of lower twist multiple than the other but otherwise similar in all respects, are converted to plain single jersey fabrics, then which one would exhibit higher curling and why?

Ans.: Primary cause of curling is the stored elastic energy due to bending deformation. A yarn with higher twist multiple would offer higher resistance to bending and therefore store higher strain energy for similar deformation. Hence the knitted fabric made from yarn with higher twist multiple would exhibit higher degree of curling.

Q5 Consider two similar small diameter plain single jersey tubes made from thick yarns with wale lines running parallel to the length direction, one showing the technical back side to the viewer while the other showing the front side. Which one would tend to be more open and therefore easier to be employed as a narrow tube?

Ans.: The one with its technical front side exposed to the viewer would have its openings at two ends curled outwards, therefore making the same more easily accessible.

Q6 Explain why a rib knitted fabric exhibits high elastic stretch in the course direction.

Ans.: The torque generated at each sinker loop pulls adjacent wale lines close together and is the root cause behind high elasticity in the course direction.

Q7 Explain the reason behind 3x3 rib being thicker than 2x2 rib.

Ans.: A 3x3 rib has three wale lines of plain knit stitched to the front followed by another three wale lines of plain knit stitched to the back. Each strip of these three wale lines would curl either in the convex mode or in the concave mode depending on the direction of stitching. Similar would be the behavior of a 2x2 rib. However the extent of curling of each strip of three wale lines in 3x3 rib would be higher than the strips of two wale lines in a 2x2 rib and hence the former would result in a thicker fabric.

Q8 Would a rib construction exhibit spirality of wale line?

Ans.: No

Q9 Consider a hypothetical construction where each wale line and each course line exhibit loops stitched alternately to back and front. How would the resultant fabric compare with a fabric made of plain single jersey construction in terms of curling, spirality and elasticity in two principal directions?

Ans.: The resultant fabric would exhibit no curling and no spirality. It would exhibit much lower modulus and much higher elastic stretch than a plain single jersey fabric in both principal directions.

Q10 If one knits four plain single jersey courses knitted to the front followed by another four knitted to the back, how then would the resultant fabric compare with a fabric made of purl construction in terms of dimensions and elasticity in two principal directions?

Ans.: The resultant fabric with four plain single jersey courses knitted to the front followed by another four knitted to the back would be thicker and longer than a purl knitted fabric, width being same for the two. In the length (wale) direction this fabric would exhibit higher modulus and lower elastic stretch in tensile mode.

Q11 Is it possible to design an Interlock fabric with for example Polypropylene yarns occupying one side while cotton yarns occupy the other?

Ans.: The odd numbered courses can be fed cotton yarn while the even numbered are fed PP yarns. The cylinder needles knit and the dial needles tuck in the odd courses while the reverse takes place in the even courses.

Q12 Is it possible to design a reversible pinstriped fabric based on a derivative of Interlock?

Ans.: One can knit a 4x4 Interlock and feed the two colors alternately.

Q13 Rank the basic weft knitted constructions, knitted from the same yarn to the same loop length, in terms of

1. Elastic stretch along the wale & course directions
2. Thickness
3. Width &
4. Mass per unit area

Ans.: Elastic stretch in the wale direction: Purl>plain &rib>interlock

Elastic stretch in the course direction: Rib> Interlock> plain &purl

Thickness: Interlock>rib & purl>plain

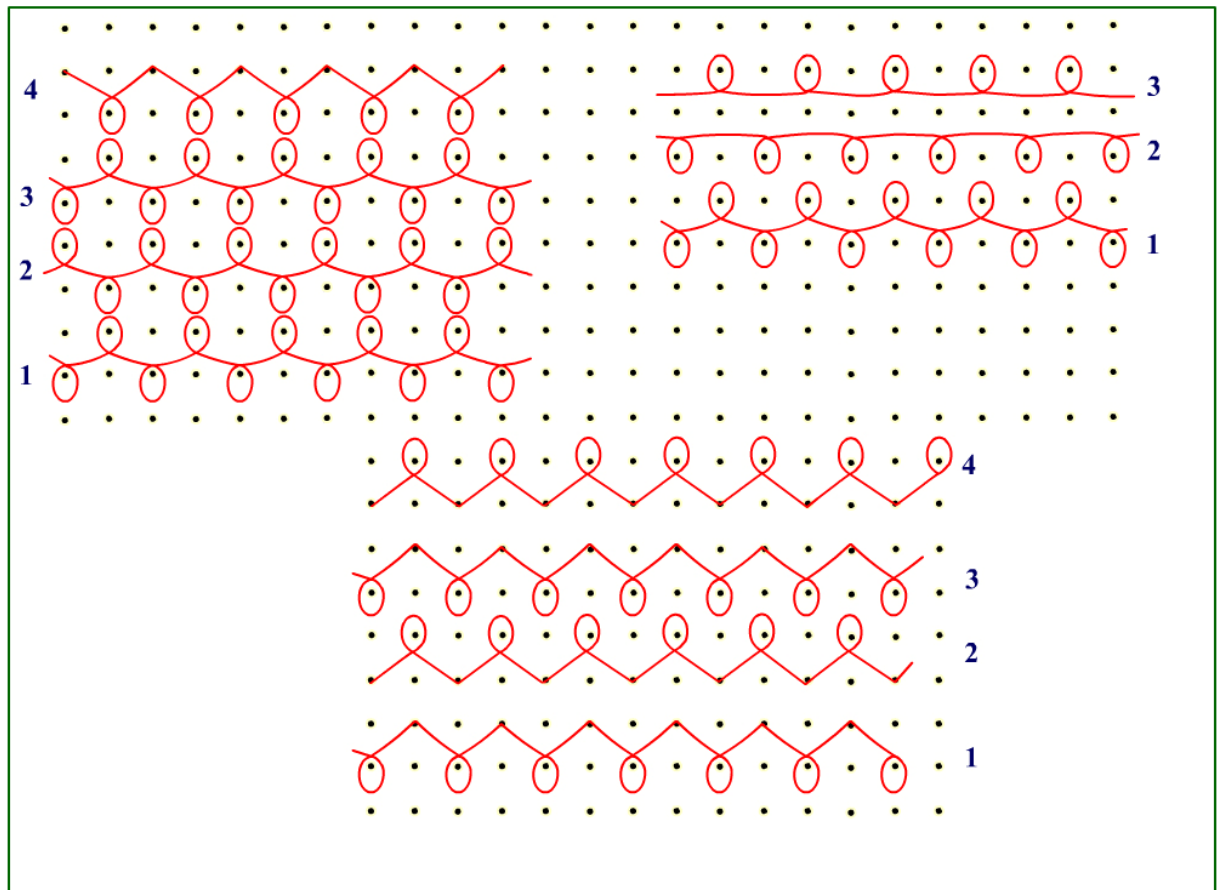
Width: Plain &purl >interlock>rib

Mass per unit area: Interlock>rib & purl>plain

Q14 Make a point paper representation of

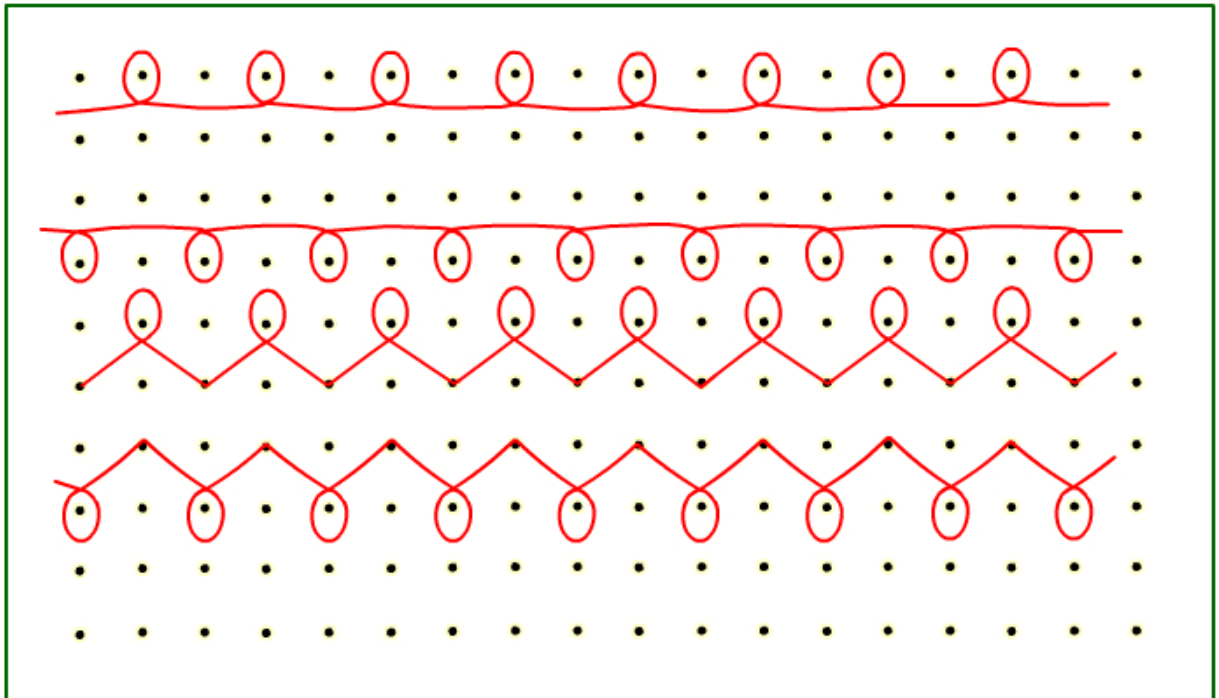
- Derivative of interlock with tuck loop in every fourth course on the back bed
- Derivative of 1x1 rib with tuck loops in alternate courses on front & back beds.
- A 1 x 1 rib based construction with the first course knitting on all needles whereas the 2nd course knits only on the front bed & the 3rd course knits only on the back bed

Ans.:



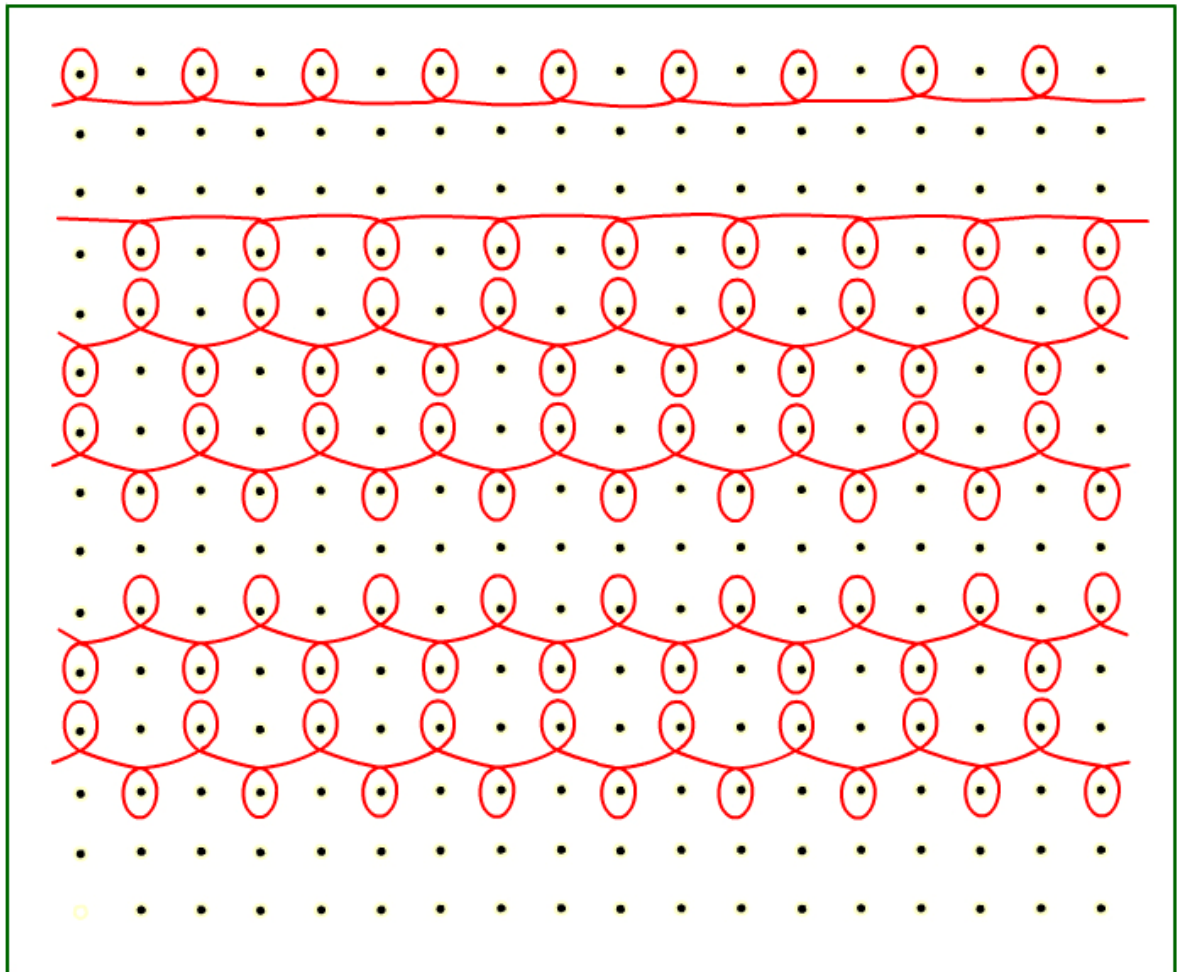
Q15 Create a point paper for a rib gated construction & draw the same repeating on four courses, with the first two courses knitting one effective Full Cardigan course while the third course knits loops only on the front bed , whereas the fourth one knits loops only on the back bed.

Ans.:



Q16 Create a point paper for a Interlock gated construction & draw the same repeating on six courses, with the first four courses knitting two effective Interlock courses while the fifth course knits loops only on the front bed , whereas the sixth one knits loops only on the back bed. In terms of final fabric areal density would this construction result in a heavier fabric or a lighter one than a plain Interlock? Justify your answer.

Ans.:



The fifth and sixth courses effectively result in one course of a tube in single jersey construction, which is lighter than interlock. Hence the resultant fabric would be lighter than a fabric made of interlock construction.