

Classification of Fabric Defects



Different Type of Fabric Defects

Fabric defects

A fabric defect corresponds to a flaw on the manufactured fabric surface. There are numerous fabric defects, and most of them are caused by machine or process malfunctions. Apart from this, defects are caused by faulty yarns or machine spoils. Each factor has different effects and greatly reduces the sale and serviceability of the textiles.

Defects Classification

Defects are broadly classified as minor, major, and critical defects. Minor defects include small faults which have no influence on the purchase of the product. Major defects are those which when exposed, are likely to affect the purchase of the product and are hence categorised as seconds. Critical defects would cause an entire roll to be rated as a second or worse.

In terms of quality standards, the defects on the fabric surface are categorized into two: surface colour change and local texture irregularity. Further, the defects can be classified as:

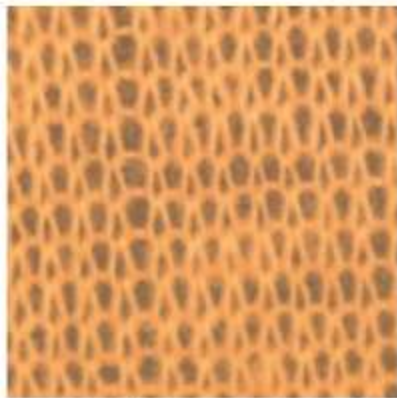
1. Yarn Defects
2. Weaving Defects
3. Isolated Defects
4. Pattern Defects
5. Wet Processing Defects
6. Raising Defects
7. Milling Defects

1. Yarn defects in fabric

These are fabric defects caused due to faulty yarns.

i. Barre - These are horizontal stripes or streaks of uniform or uneven width caused mainly due to high yarn tension (4)

ii. Broken Filaments - This defect occurs when individual filaments constituting the main yarn are broken.



Barre



Colour Flecks



Knots

iii. Coloured Flecks - It occurs due to the presence of coloured foreign matter in the yarn.

iv. Knots - This results when broken threads are pieced together by improper knotting.

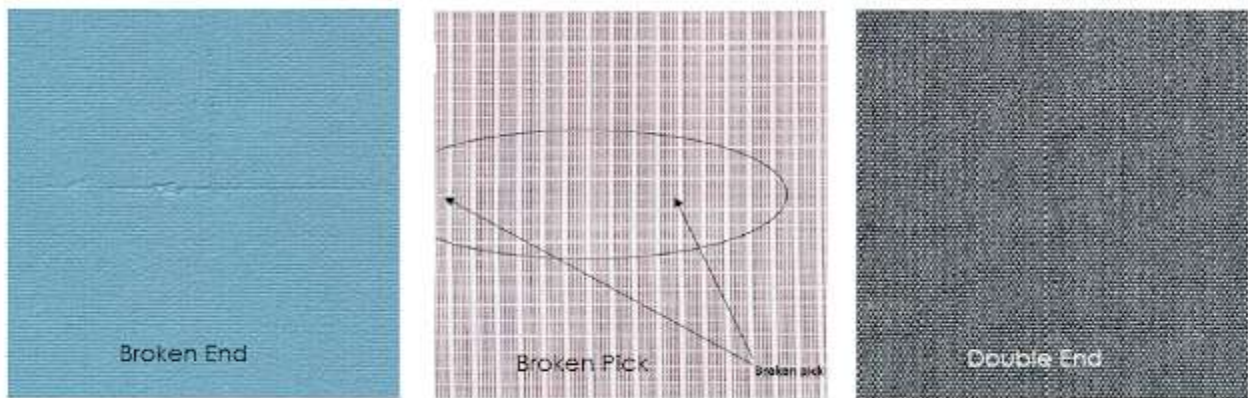
v. Slub - A Slub is a bunch of fibers having less twist or no twist and has a wider diameter compared to normal spun yarn.

vi. **Spirality** - It is the twisting of yarn due to residual torque in it.

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2. Weaving defects

These defects are those which occur due to the process of weaving. The different weaving defects are as follows:

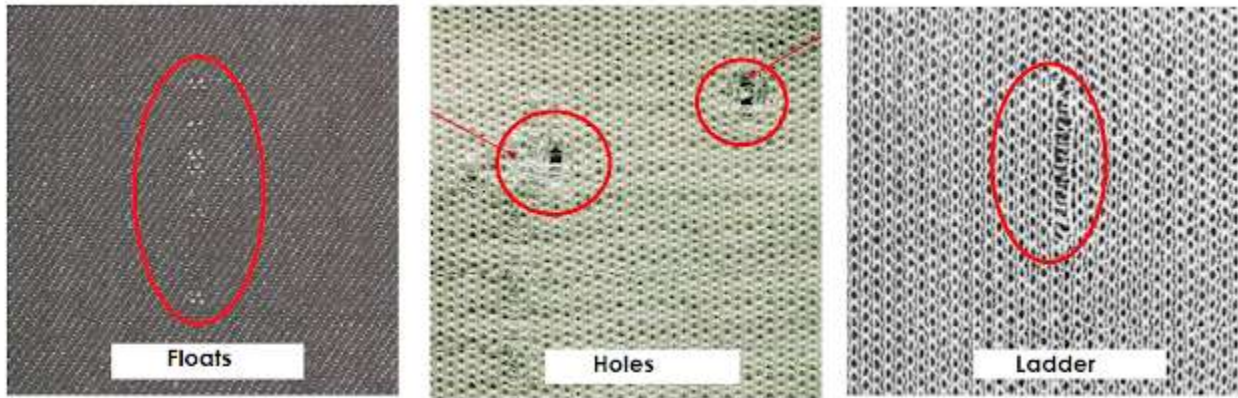


i. **Broken Ends** - This results due to breakage of warp yarns during weaving.

ii. **Broken Picks** - This results due to breakage of filling yarns during weaving.

iii. **Double End** - When two or more ends by fault get woven as one generating a thick bar running parallel to the warp.

iv. **Double Pick** - Instead of single, double weft yarns are woven in the fabric



v. Float - Float is the improper interlacement of warp and weft yarns in the fabric over a certain area.

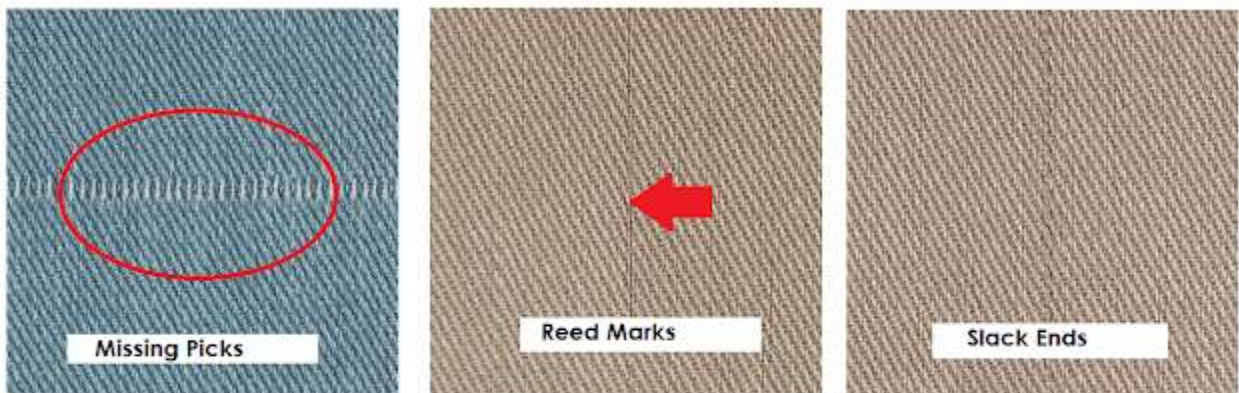
vi. Gout - It results due to an accumulation of short fibres in the yarn and gives a lumpy appearance on the fabric.

vii. Holes, Cut or Tear - these defects may be generated due to various reasons.

viii. Ladder - This defect is found in knitted fabrics. It indicates a row of dropped stitches in the wale direction.

ix. Lashing in - This defect occurs when an extra piece of yarn is woven in the fabric near the selvedge.

x. Local Distortion - Displacement of warp and/or weft yarns from their normal position.

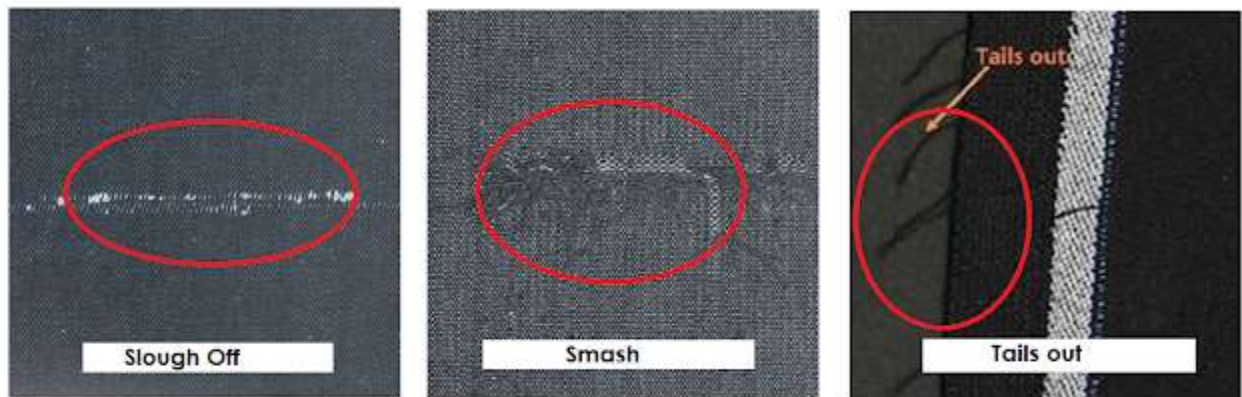


xi. Missing Ends - Omission of an entire end along the length of the cloth

xii. Missing Pick - Omission of an entire pick across the width of the cloth

xiii. Reed marks - These appear as a pronounced warp way crack and are caused by a damaged or defective reed.

xiv. Slack End - Slack ends are due to the broken ends that are being woven without tension. The yarn puckers as it is woven.



xv. Slough Off or Snarling - Bunch of weft yarns is woven into the fabric together due to yarn slippage.

xvi. Smash - It refers to the ruptured cloth structure created as a result of many broken warp ends and floating picks.

xvii. Tails Out - These are untrimmed loose threads on the selvedge due to improper cutting.

xviii. Thick and Thin Place - Bunching up of yarns in the fabric causes thick and thin places in the fabric.

xix. Tight Ends - This defect in the fabric is due to warp yarns which are under much higher tension than the normal amount.

3. Isolated Defects

- i. Colour Fly** - Fibres or yarn pieces of varying colours stuck on yarn or woven in the fabric.
- ii. Fuzz Balls** - Fuzz balls are created when the fibres are broken loose and pushed back on the yarn.
- iii. Neppy Surface** - This condition is characterized by an excessive amount of small tangles and/or knots of fibres (neps) appearing on the fabric surface
- iv. Oil Stains** - Oils from machinery stain the fabric.
- v. Unevenness** - Fabric surface unevenness and defects are usually created by yarn irregularity and defects in the weaving process.

4. Pattern Defects

- i. Broken Colour Pattern** - When a coloured yarn is out of place in the creel, this defect is created.
- ii. Cover** - Considering twill fabrics, this defect results when a coloured yarn is out of place in the creel. If settings are proper, warp yarn will dominate and form a smooth surface of accentuated twill lines.
- iii. Miss-selection of pattern** - In this defect, the pattern design gets altered due to the random dropping of stitches.
- iv. Skip Stitch** - When a stitch is skipped in knitted fabric and next yarn is picked up, a float is formed on the face of the fabric.

5. Wet Processing Defects

Defects caused in the fabric due to desizing, scouring, bleaching, dyeing, and finishing processes. A few of the defects are mentioned below.

i. Colour Bleeding and Staining - Colour bleeding from dyed yarn in fabric tints and stains the adjacent fabric when the fabric undergoes subsequent processes.

ii. Crease Marks - Crease marks are created due to creased fabric passing through squeeze rolls in the dyeing or finishing process.

iii. Dye Marks - Dye spots or dye marks are caused due to dye deposits on the machine or improper mixing of dye stuff in the solution.

iv. Fabric Width Variation - Fabric shrinks width-wise due to wet processing.

v. Misprinting, Off printing, or Colour Out - Misprint is when the print is not as per the design required. Off printing or out-of-register is the improper positioning of print parts due to print rolls not being synchronised. Colour out is the result of colour running low in the reservoir.

- Off Printing
- Colour Out

vi. Pin Marks - These are pin holes created when a fabric is put over a pin tenter and the holes are created far in from the selvedge, distorting or tearing the fabric.

vii. Scrimp - Scrimp refers to the pattern break in the printed fabric caused as a result of fabric going through a print machine in a creased condition.

viii. Selvedge defects - The defects appearing on the selvedge are such as torn, waved, turndown selvedge. A torn selvedge is caused due to the fabric rupturing under excessive tension when it is being processed through the tenter frame. Wavy selvedge is a result of the edge of the fabric being longer than the centre. Selvedge turndown is the mark of selvedge created on the fabric due to the selvedge being folded and passing through squeeze rollers.

- Turndown Selvedge
- Wavy Selvedge
- Torn Selvedge

ix. Shade Variation - It is the difference in depth of shade or colour within a fabric roll or from roll to roll.

x. Skewing - Skewing is when one end of weft yarns at one selvedge gradually run at a lower or higher than 90 angles with the warp yarns of the fabric at the other selvedge.

xi. Uneven or Patchy Dyeing - Uneven or patchy dyeing is caused mainly due to incorrect dyeing conditions or faulty pre-treatment.

6. Raising Defects

These defects are observed in pile or raise fabrics which are caused due to their manufacturing process.

i. Broken Pattern - It refers to the discontinuity observed in the design or pattern of the pile fabric. An example would be in pile-cut fabrics, where there is a broken pattern due to an improper distance between the blade of the shearing machine and the material.

ii. Missing Pile Thread - A line is created in the terry fabric due to the missing pile.

iii. Pile-less Spot - It is an area where the pile is missing.

iv. Uneven Piles - Uneven raising in the manufacturing process leads to uneven piles which show as a patch.

7. Milling Defects

These defects are observed in woollen fabrics due to the process of milling.

i. Chaffing and Tearing - Damage may be caused to the cloth during milling.

ii. Fibre migration - This defect is particularly common in the milling of double cloths, where in the fibres migrate from the face of the cloth to the back.

iii. Mill Rigging - This arises from the cloth being milled for too long in the same position, which produces crease marks in the woollen fabric.

References:

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