Denim Fabric Finishing

Overview

- Why denim finishing?
- Denim finishing trends
- Finish examples
Denim Fabric Production

Standard production process flow for denim garments

1) Fabric production:
   - spinning > pretreatment (warp yarn) > bottoming (optional) > Indigo dyeing > topping (optional) > sizing > weaving > desizing

2) Garment manufacturing (making up etc.)

3) Garment finishing:
   - scraping, brushing, washing, overdyeing, bleaching, spraying, softening etc.
Denim Fabric Finishing

New trend for the last 4 – 5 years:
Finishing of denim fabrics before garment manufacturing

- denim mills have invested in new machines as well as in the development of processes and techniques
- this trend is sustainable and will be continuing in the upcoming collections
- many denim fabric producers are already finishing 30 – 50 % of their fabric output
New production process flow for denim garments

1) Fabric production:
   spinning > pretreatment (warp yarn) > bottoming (optional) > Indigo dyeing > topping (optional) > sizing > weaving > desizing

2) Fabric finishing

3) Garment manufacturing (making up etc.)

4) Garment finishing:
   scraping, brushing, washing, overdyeing, bleaching, spraying, softening etc.
Examples for denim fabric finishing – keywords:

- coating, “PU”
- resin finish
- over-dyed, reverse-dyed fabric
- flat or „ammonia“ finish
- printing
- spray finish

Often several of the above mentioned finished are combined
Advantages of denim fabric finishing:

One quality of denim fabric can be used to produce many different types of finishes

- quicker response to market and fashion demands
- higher flexibility in production
- more design options available already in fabric stage
- bigger variety of wash-down effects possible
- increased added value
Current Trends

- coating with pigments
- coating with indigo
- fabric character and soft handle of denim have to be maintained
Current Trends

Over-dyeing of denim fabrics
- subtle coloration
- natural colours

Reverse-dyed fabrics
- selvedge denim
Current Trends

Resin finish

- flat look, vintage look
- raw denim, dark denim (non-washed look)
- authentic used effects
Current Trends

Shiny finish

- coating with metallic glitter pigments
- coating with polymers, calendering
- soft handle
Current Trends

Leather finish

- coating with elastic polymers
- soft handle
- wash permanent
Current Trends

Printed denim

- animal skins (tiger, zebra)
- floral designs
- camouflage prints
- graphic patterns
Coating

- Coated denim fabrics are present in most collections.
- Due to the huge variety of achievable effects, they are an important area for further developments.
- Coatings are applied as paste or unstable foam (often incorrectly termed “stable foam” in denim mills).
- Terminology:
  - Top coat
  - Base coat
  - Textile

knife on air
knife on roll
Coating

By coating multiple effects and fabric properties can be obtained:

- tinting / over-dyeing with pigments, indigo, sulphur dyes
- modification of handle and lustre / brilliance, e.g. rubber touch, permanent softness, silk touch, paper touch
- modification of the wash-down behaviour, especially in case of two layer coating
- application of fixing agents on dark shades, black
- often followed by calendering
Resin finish

Applicable on denim fabric as:

- traditional resin finish by padding (PERFIXAN CLY)
- polymer finish by coating (e.g. acrylates)

Resin finish modifies the properties of denim fabrics as follows:

- flat finish – in denim mills not having available mercerizing units
- semi-flat finish – less distinct flat look
  (“flat finish”: less contrast after wash-down; vintage 70s look)
Resin finish

Further properties of resin finished denim fabric:

- scraping effects are more natural and authentic
- combination with pigments is possible
- dimensional stability
- permanent handle modification, e.g. softness
- dark-denim fabrics remain darker in wash-down and after multiple washes
- improvement of the crock and wash fastness – in combination with fixing agents
Finish Examples

• The final result of any fabric finishing recipe strongly depends on:
  - fabric: weight, weave type, composition (elastane content), colour, hydrophility etc.
  - application technique: knife clearance etc.
  - garment finishing method: wash-down technique, mechanical treatments etc.

• Any recipe needs to be fine-tuned on the customer’s fabric!

• Not limited to denim fabric
Finish Examples

**Pigment coating**

Two-layer coating process in order to achieve unusual wash-down effects

**Base coat:**
- Unstable foam coating
  - PERICOAT AC 220
  - PERICOLOR BLACK PIGMENT

**Top coat:**
- Paste coating
  - PERICOAT AC 230
  - PERICOAT PU 326
  - PERISOFT NPE
  - PERICOLOR RED PIGMENT
Pigment coating

Unstable foam coating recipe based on:

PERICOAT AC 220
PERICOAT COMPOUND KAO
Indigo pigment
Finish Examples

Glitter effect coating

Paste coating recipe based on:

PERICOAT AC 220
PERISOFT NPE
PERICOAT PEARL GOLD
Finish Examples

Glossy finish

Two layer paste coating with calendering after base coating

Base coat
PERICAOT AC 230
PERICOAT PU 345
PERICOAT PU 326

Top coat
same as base coat
Artificial leather

Two layer paste coating with calendering after base coating

Base coat
PERICOAT AC 220
PERICOAT PU 326
PERICOAT PU 345
PERISOFT NPE
PERICOLOR BLACK PIGMENT

Top coat
PERICOAT AC 220
PERICOAT PU 326
PERICOAT PU 345
PERISOFT SIV
PERICOLOR BLACK PIGMENT
Finish Examples

Inverse denim

Stable foam coating followed by calendering

PERICOAT AC 220
PERICOAT PU 326
PERICOAT COMPOUND KAO
PERICOLOR WHITE PIGMENT
Finish Examples

Inverse denim

Unstable foam coating recipe based on:

PERICOAT AC 220
PERICOAT COMPOUND KAO
PERICOLOR WHITE PIGMENT
Resin finish
Paste coating recipe based on PERICOAT AC 220

Improvement of rubbing fastness:
unfinished  finished
with PERICOLOR BROWN PIGMENT:
dry
wet
Finish Examples

Resin finish

Padding recipe based on:

PERFIXAN CLY
PERISTAL KSV
PERICOAT AC 225
PERISOFT NPE
PERICOLOR BROWN PIGMENT

without pigment

with pigment
Finish Examples

Reverse side coating

For fashionable colour selvedge denim

Paste coating recipe based on:

PERICOAT VA 110
PERICOLOR RED PIGMENT
Finish Examples

Protect print

Printed parts of the fabric show less abrasion after wash-down

Printing paste based on:

PERICOAT PU 310
### Finish Examples

Selection of further products used:

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<th>Foam coating:</th>
<th>Paste coating:</th>
<th>Heavy stone wash:</th>
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<tr>
<td>PERIPRINT ZP</td>
<td>PERIPRINT TN</td>
<td>PERIZYM 58</td>
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<td>PERICOAT FOAMER HPO</td>
<td>PERICOAT CROSSLINKER MV</td>
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<td>PERICOAT STABILIZER STA</td>
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