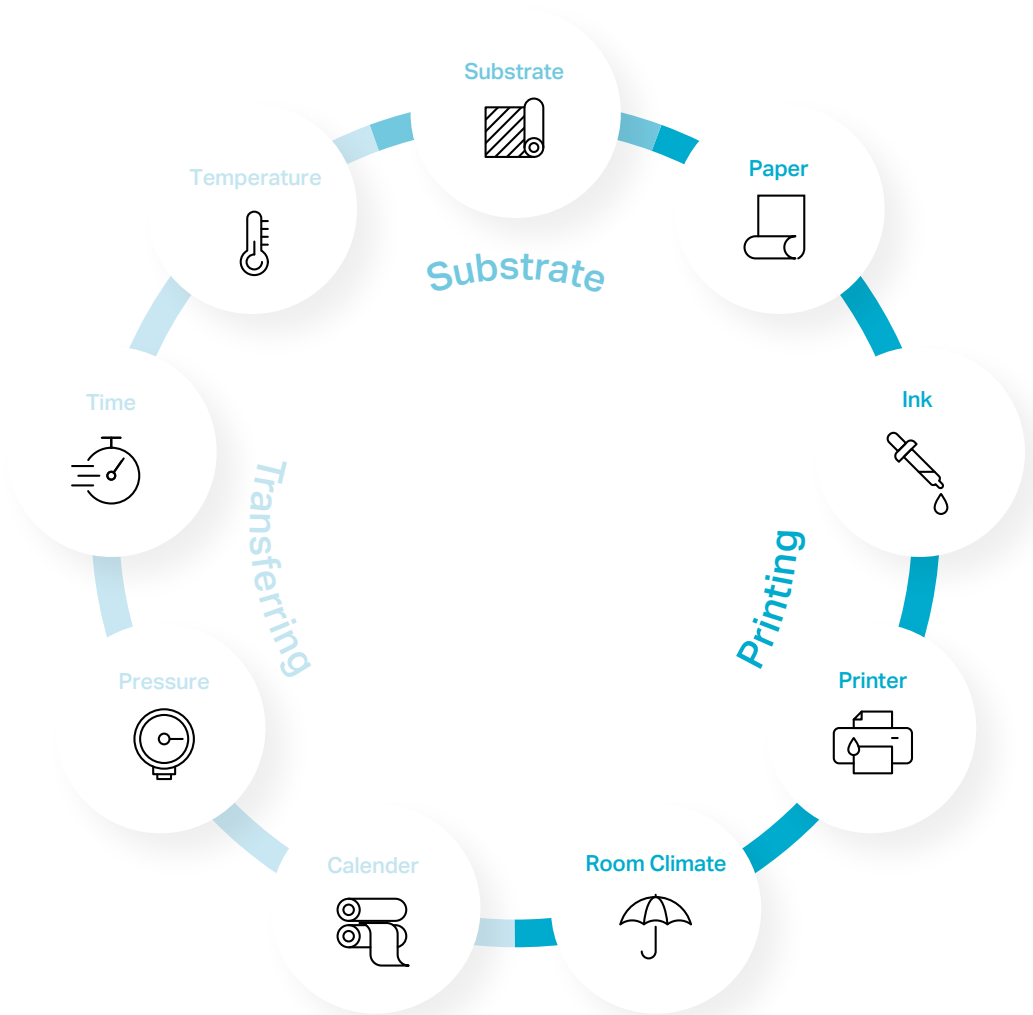


# Manual: Dye Sublimation Process

Technical and enviromental impacts on quality.



## Influence of printing parameters

- Type of ink
- Drying capacity of printer
- Height of print head
- Print design and profile
- Web tension

## Influence of handling of paper

- Plain paper stored or transported without original packaging and/or in nonclimatised enviroment
- Printing room not climatised
- Storage of printed paper in wet and hot area
- Dust in the air
- Seasonal conditions
- Web tension is too high
- Too little time between printing and transfer

## Influence of paper properties

- Structure of paper
- Correct choice of suitable paper

## Transferring

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### Influence of transfer temperature

- Transfer temperature < 180° C
- Transfer temperature > 215° C
- Temperature profile on press  $\Delta > 5^\circ \text{C}$
- Transfer time < 20 sec.
- Transfer time > 60 sec.

### Influence of transfer pressure / web tension

- Transfer pressure too low
- Transfer pressure too high
- Pressure profile on calendar unsuitable
- Calendar felt in bad condition
- Protection paper
- Web tension too high
- Web tension too low

## Substrates

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### Influence of substrate quality

- Consistency of textile
- Textile is a blend of polyester and cotton
- Textile used in pieces (sportswear)

# Printing



## Influence of printing parameters

Check your parameters

Type of ink				
Drying speed of the ink				
Bleeding behaviour of different colours				
Ink repelling on print (pooling)				
Colour shifting				
Reproducibility between different batches				
Drying capacity of printer				
Ink deposit on back side paper				
Paper creasing during transfer (paper too wet)				
Height of print head				
Possible head strike				
Blurry image of too low/high				
Print design and profile				
Ink is not drying if ink load too high				
Printed image not sharp				
Colour bleeding and pooling				
Head strike if ink load too high (wet cockling)				
Irregular image after transfer (moisture in paper during transfer)				
Paper creasing on take-up and/or during transfer (moisture in paper)				
Web tension				
Head strike if tension is too low				
Side-curling of paper				
Paper shrinks in cross direction if too low				
Paper creasing				

## Influence on paper properties

Check your parameters

Structure paper				
Risk of curling if not symmetrical and print environment not climatized				
Insufficient colour release on uncoated paper				
High absorption of ink if paper is too porous				
Correct choice of suitable paper				
Product choice of microporous or swellable coated paper				

# Influence of handling of paper

Check your parameters

## Plain paper stored or transported without original packaging and/or in nonclimatised enviroment

Paper creases				
Reduced ink drying capacity				
Increased tendency to wet cockling				
Colour release not consistent				
Possible colour shifting				

## Printing room not climatised

Increased risk of creasing and cockling				
Increased risk of head strikes				
Nozzle-clogging of the print head				
No consistent quality				
Ink not drying at winding station, causing set off				

## Storage of printed paper in wet and hot area

Transfer not complete (absorption of humidity)				
Paper creases				
Blurry image				

## Dust in the air

White spots in printed area (particles covering inks while entering the calender)				
Colour spots in white area (coloured fabric fibres sublimating during transfer)				

## Seasonal conditions

Production not reproducible/colour shifting				
Creasing during rainy season				
Ink drying capacity lower during rainy season				
Image shows irregularities during rainy season				

## Web tension is too high

Paper is creasing in machine direction				
Bad traction of paper on the heating drum				

## Too little time between printing and transfer

Colour density not consistent over the width				
Creasing during transfer				
Reduced colour density				
Colour shifting				

# Transferring



## Influence on transfer temperature

Check your parameters

### Transfer temperature < 180° C

Transfer not complete				
Reduced colour density				
Colour shifting				
Image shows irregularities				

### Transfer temperature > 215° C

Colour density on surface of textile dropping				
Ink getting through the textile				
Possible textile damages				
Explosions at edges of printed image				
Paper shrinking				
Paper yellowing				

### Temperature profile on press $\Delta > 5^\circ \text{C}$

Density not consistent over the width				
Darker/lighter lines				
Colour shifting				
Cloudy print effects on textile				

### Transfer time < 20 sec.

Transfer not complete				
Reduced color density				
Colour shifting				
Image shows irregularities				

### Transfer time > 60 sec.

Reduced colour density on surface of textile dropping				
Inks penetrates through the textile				
Possible textile damage				
Explosions at edges of printed image				
Paper shrinking				

## Influence on transfer pressure / web tension

Check your parameters

<b>Transfer pressure too low</b>				
Transfer not complete				
Reduced colour density				
Colour shifting				
Image shows irregularities				
Paper creasing				
Blurry image				
<b>Transfer pressure too high</b>				
Inks getting through the textile				
Possible textile damage				
Explosions at edges of printed image				
Paper tears				
Protection paper embosses into the textile				
<b>Pressure profile on calender unsuitable</b>				
Density not consistent over the width				
Ink penetration into textile not consistent				
Possible creasing of paper				
Paper and textile shifting to left/right side of press				
<b>Calender felt in bad condition</b>				
Printed image shows irregularities				
Paper creases, especially with heavy ink load				
Textile not transported properly				
<b>Protection paper</b>				
Creasing of protection paper embosses into the textile				
Image not sharp (colour gas not getting out properly)				
<b>Web tension too high</b>				
Paper creases in machine direction				
Bad traction of paper on the heating drum				
<b>Web tension too low</b>				
Paper creases in cross direction (paper not flat)				
Blurry image				

# Substrates



## Influence of substrate quality

Check your parameters

<b>Consistency of textile</b>			
Paper creases if textile is soft and thick			
Colour gas explosions/not getting out through the fabric			
Blurry image in case of rough textile structure			
<b>Textile is a blend of polyester and cotton</b>			
Textile needs minimum 65% of polyester content			
<b>Textile used in pieces (sportswear)</b>			
Creasing on edge of textile (pressure difference)			
Ghosting effect if paper is not tacky			



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