... for a colourful future

Process Colour Printing on Carpet
Personalize Your World
ChromoJET is a modular family of printing systems based on valve technology.

Built according to demand in respect of print width, number of colors and production speed.

For many types of applications:
Tiles, mats, bath-mats, rugs, contract carpet, residential carpets, acrylic blankets, artificial fur, terry towels, upholstery, automotive, ...

2008 about 120 mio m² of carpet was printed on ChromoJET.
What is ChromoJET

- Jets are electromagnetically opened and closed
- Dye-jet is formed by a nozzle.
- Different nozzles for different applications
- Colour is pressurized (1-3 bar) and supplied from a pump- and filter-system directly to the jets
Jets are arranged in groups on a moving print-head which traverses the carpet – like a shuttle.

Number of jets per group determine the production speed.

Up to 16 color-groups are arranged per print-head.

Jet Generations
Spot colour printing with pre-mixed dyes:

- Dye shades are pre-mixed according to the recipes
- One tank for each colour shade used in the print
- Amount of dye paste must match the actual consumption
- System must be washed for a colour change
What are process colours?

In process colour printing a set of basic shades are used to generate all colour shades on the carpet using small dots of 11 basic shades. On 76 dpi we are printing 9 dots per mm² !!!
How does process colour printing work?

Process colour printing means that the actual colour is mixed on the substrate using a number of basic colours (just as in an office printer). This method has a lot of advantages against spot colour printing, where each colour must be mixed in advance.

- No change of colour - always run with same dyes (> environmental friendly)
- Almost any colour possible on the design
- No minimum order, no waiting time for sample
Process colour printing
Selection of basic shades and dyes

Criteria for dyestuff selection:

- Brilliant shades
- Wide colour gamut
- Good wash and light fastness
- Works on PA and wool
- Paste must be stable over a long period
- All ingredients (thickener, dyestuff, chemicals ...) of the recipe must be compatible
- Environmental friendly
Example of printed shades on carpet
Advantages

- Almost any colour possible
- No lab work - quick sampling on production line
- No colour kitchen – only holding tanks
- Highest efficiency
- No minimum quantity
- Only 5 basic dyestuff are used for all applications
- Environmental friendly because no colour change

Limitations

- Limited Speed (up to 5 sqm/min)
- Limited penetration
- Limited selection of dyes and chemicals
- Not much flexibility in chemicals and recipes
- RIP Software is important
- Highest precision in machinery needed
- If one colour is missing – the process does not work
Applications:

- Coco, sisal, hemp and jute mats with pigment dyes
- Acrylic and polyester blankets with cationic dyes
- Logo and welcome mats
- Exhibition and event carpets
- Carpet tiles
- Rugs and mats
Process colour printing
Layout of the 2 m wide line for carpet and carpet tiles at S-Print, Deinze
Process colour printing
Process colour printing
Process colour printing - Applications

Carpet for Events

www.floorpromotion.com
Carpet for Exhibitions

Process colour printing - Applications

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Process colour printing - Applications

Wall covering Carpet

www.floorpromotion.com
Rugs and Mats

Process colour printing - Applications

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### Spot colours versus Process colours

<table>
<thead>
<tr>
<th>Spot Colour Printing</th>
<th>Process Colour Printing</th>
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<tbody>
<tr>
<td>Pre mixed dyes are used to get the shade</td>
<td>Basic shades of dyes are used to generate the requested shade on the carpet</td>
</tr>
<tr>
<td>Colour change by washing the system &gt; lowers efficiency</td>
<td>Colours are changed only on the computer</td>
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<tr>
<td>Good levelness on solid colour</td>
<td>Dithering and doting can be seen on some shades</td>
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<tr>
<td>Penetration is independant from shade</td>
<td>Light colours have a lower penetration than dark colours</td>
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<tr>
<td>Number of printable shades depends on colour systems on the machine</td>
<td>Unlimited number of shades</td>
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<tr>
<td>Production speed- up to 40 m²/min</td>
<td>Limited production speed of about 5 m²/min</td>
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What does ChromoJET process colour printing mean for the carpet industry?

- Higher flexibility - no minimum quantity
- Smaller print lines – less space, less investment
- Highest definition of 50 or 76 dpi
- Unlimited number of colours – the challenge for the designer
- Environmental friendly – no colour change
- New products, designs and carpet constructions
- This is the future for specialities and contract carpet
professional partner for complete solutions of digital carpet printing systems

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