

Carpet Tiles

markus.breitenlechner / PDF / Thu, 04/28/2022 - 12:33



Basics

- Carpet tiles are becoming more and more popular. Besides their modularity, carpet tiles also offer a wide range of design possibilities.
- Constructions for printing can vary from tufted low-loop pile constructions up to high-pile twist and cut-pile constructions.
- For contract business, loop-pile constructions out of PA6.6 with about 600 g/m² pile weight are most popular.
- Prints must have a good light and shampoo fastness, because carpet tiles are mainly used for offices and public buildings.
- A number of printing technologies and processes are available - each one with advantages and disadvantages.

Printing Methods



Printing on roll-to-roll

- In this case, the carpet is tufted on a non-woven Polyester primary backing with about 120 g/m²
- To enhance stability, a pre-coat should be applied
- After the **CHROMOJET** or **COLARIS** printing process, the carpet goes to the backing line either in full width or split into 2 m wide rolls
- After the final carpet tile backing, the rolls are cut using either a tie-cutter or a camera-controlled knife cutter with rotating knives (especially used for carpet tiles with a backing out of non-woven Polyester fleece)
- If a camera-controlled cutter is used, it is also possible to print very geometric designs and cut them according to the design
- If a tie-cutter is used, only 'random designs' can be used



Printing on slabs

- In this case, the tufted carpet is printed after its final backing. For easier handling, slabs of about 102 x 102 cm are cut out after the backing process.
- These slabs are positioned onto the **CHROMOJET**, and normally a set of 4 tiles are printed onto each slab.
- After the printing process, each slab is positioned on a tie cutter, and the tiles are cut exactly according to the print registration.
- This process is more labour-intensive, and the printing line must be adapted to handle these slabs.



Printing individual, pre-cut tiles

Before printing pre-cut tiles, a number of conditions and limitations must be considered:

- In case a higher pile is used, it might be difficult to achieve solid colors on the edges
- Variations of the color shade at the edge of the tile have been experienced, resulting from loose fibers and from uneven density at the edges

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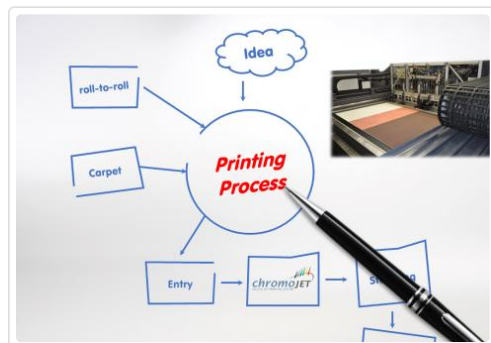
- We have also experienced stability problems on certain backings, like bitumen or other thermoplastic compounds
- This method is generally not really recommended



Printing oversized tiles and post-cutting

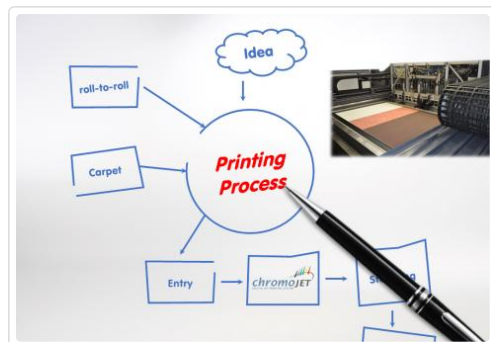
- In this case the tiles are pre-cut with an oversize of about 1 cm (i.e. 51 x 51 cm; 61 x 61 cm...)
- After the tile is printed, it must be cut a second time in a tie cutter, using a special cutting tool which registers the tile precisely
- This method produces perfect tiles, but it is labour-intensive (putting individual tiles onto the **CHROMOJET** printer; post-cutting each tile, ...)

Printing Process



Processing individual carpet tiles or slabs with a Polyamide face fiber

- Manual tile positioning
- Printing with acid dye
- Steaming
- Washing
- Drying



Processing roll-to-roll carpets of 2 m width

- Entry with unrolling, accumulator, pre-steaming, center guiding
- Design printing with **CHROMOJET**, using process colors
- Optional penetration enhancement by **SUPRAPRESS** system
- Steaming for about 5 minutes
- Washing and vacuum extraction
- Drying
- Winding

Technical Data

Carpet Tile Printing Machines

	CHROMOJET ⁸⁰⁰	COLARIS
Technology	valve jets with 50 or 76 dpi	inkjet with 400x400 up to 800x3200 dpi
Print on roll-to-roll	2,200 mm wide	2,200 mm wide
Penetration	excellent / full	good
Speed	up to 1.5 m/min depending on number of jets per color	up to 4 m/min depending on printheads per color and print resolution
Dye and ink	acid, pre-met; special dyes	acid ink
Number of basic colors	14 process colors + 2 spot colors	6 up to 12

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Recommendation	for pile products from 300 to 1,500 g/m ²	for low to medium pile constructions from 200 to 800 g/m ²
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