Microfactory

End-to-end engineering from 3D design to production: A milestone for the fashion industry on the way to Industry 4.0

In the apparel industry, only the next collection counts and must be implemented as quickly and cost-effective as possible. The paradigms of Industry 4.0, which are horizontal integration through value networks, end-to-end engineering across the entire value chain and vertical integration as well as networked manufacturing systems, lead to more efficient, flexible and responsive processes. Here the "Simulate, Print and Cut" solution, as a seamless digital and integrated process, is a particularly important milestone for the fashion industry on the way to Industry 4.0.

Simulating designs jointly with the garment and even the potential customer brings yet significant advantages and our new technology approach takes this even one step further. "Simulate, Print and Cut" directly links the virtual simulation with production. The solution enables a complete digital process chain, from the first virtual design to fabric printing and automated cutting. Leading technologies are integrated for simulation, textile design, marker making, printing and single-ply cutting. The new seamless process saves time, reduces material consumption and increases the quality of design, especially with complex fabric designs.

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The Microfactory, coordinated by DITF (Deutsche Institute für Textil- und Faserforschung), showcases live the completely networked and integrated production chain from design through to finishing

#1

CAD/Design

Starting point is the development of your creative design in CAD. Using a 3D simulation, the design is processed for cutting out and sewing. For this purpose, identifying QR codes as well as position markers are integrated into the production order for later localization.

#2

Printing

A TexPrint program enables the design color data to be processed for digital printing. Best color accuracy can be guaranteed due to the use of the multispectral technology. In a next step the individual designs are printed onto transfer via sublimation printing machines. Optimum printing results are ensured through the thermal transfer on calenders .

#3

Cutting

Due to identifying tags, the job is detected in a camera-assisted manner. Using the markings supplied, the system identifies the exact location and cuts the material to size fully automatically in accordance with the selected job parameters.

#4

Assembling

In a last step the individual elements are assembled live into a finished product with welding and tapping machines .

Textile future!