UV INKJET PRINTING SOLUTION

Based on Drop on Demand technology
Digital Drop on Demand technology using inkjet

Digital inkjet technology using Drop on Demand is an innovative process technology for applying high-grade functionalities to textile substrates. In this regard, two aspects are important. In the first place the drop size, which is now variable from 4 to 14 picoliter. This means that colors, coatings or other fluids can be applied to non-flat surfaces, such as technical textiles. Consequently unparalleled functionalities can be realized. In the second place this digital inkjet technology intends to create a revolution in the field of process technology.

Thanks to the flexible production, short and long runs are now possible. Next to freedom in design, this new process technology also offers logistic benefits, such as customer order variety and low stock. The digital inkjet machine allows only 5% of the startup costs related to existing techniques. Endless color variations are now possible without production limits. This results in lower costs in relation to higher quality, also offering marketing and sales opportunities. High optical density is available, even in single pass applications. High stability and fixation are key. Mass customization and on demand delivery become reality. And on top of this, this breakthrough digital technology is sustainable thanks to savings on energy, water, inks and color waste.

UV inkjet printing and finishing

Ultraviolet (UV) cured colour printing and finishing can be applied on textile substrates using inkjet. The UV inks are dried by exposure to UV radiation. The UV coatings can be formulated up highest solid contents, so that these have no volatile component that contributes to pollution. The UV process relies on special inks that have photo initiators incorporated that, when exposed to UV light, start a chain reaction that forms a solid, dry continuous ink, yielding bright, vivid colors and deep rich blacks.

Innovative digital technology

The first digital UV curing system using inkjet has 8 inkjet heads and a print width of 1.8 meters. Future systems will have 16 to 32 inkjet heads. The innovative machine applies the CMYK colors of the UV inks to the textile substrates with extreme accuracy, with a total error margin under 20 microns regarding the placement of drops on the textile substrate. Printed colors are cured by UV light. No solvents or water are needed.

UV curing system

The digital system is designed with an innovative curing process, composed by:

- The pinning station: two LED UV lamps mounted on both sides of the printing heads are instantly fixing the ink to the fabric using only a small amount of energy. The LED UV lamps ensure best print quality and lowest heating of the fabric.
- The post curing station: after the printing or finishing, the fabric runs under a mercury bulb UV lamps arranged over the width of the machine. It gives the necessary UV energy to fully cure the ink onto the substrate. These mercury UV lamps are equipped with shutters to close of fabric standstill.

UV inks

TenCate is producing its own UV inks by its subsidiary Xennia Technology Ltd. The inks are specifically developed for the applications TenCate is using.

The Renoir digital UV curing system using Drop on Demand: Features

- CMYK standard colors
- Spot colors and white are available
- High quality thanks to a resolution up to 2400 Dots Per Inch (DPI)
- High optical density, even in single pass applications
- Print-head with variable drop size (4 Levels)
- Print-head configuration up to double rows
- Performances up to 600 m² per hour on textile substrates
- Innovative UV ink curing system with UV Light-Emitting Diode and bulb lamp
- Open ink system suitable for Xennia and Agfa UV-inks
- 10Liter tank by each color for high autonomy
- In-line ink filtering and degassing modules
- High stability and fixation
- Printing width up to 1,8 meters
- Printing registered on two sides
- UV curing: no solvents or water
- Fabric entry: Roll and A-frame up to D.1.6 meters
- Printing blanket with Kevlar® technology
- Continuous fabric gluing with Dynaplast®
- Continuous blanket washing
- Blanket drying with air blade
- Magnetic adhesive application included
- Permanent, thermoplastic and resin as blanket adhesive types
DIGITAL TEXTILE SOLUTIONS

Benefits
• Applying high-grade functionalities to textile substrates
• Flexible production, short and long runs
• Freedom in design
• Optimal logistics, such as customer order variety and low stock
• Endless color variations without production limits
• High autonomy in production
• Mass customization and on demand delivery
• New marketing and sales opportunities
• Low running costs
• Possibility of automatic scheduled maintenance cycles during runs
• Lowest ink consumption thanks to the Drop on Demand technology
• Low water and energy consumption:
• Savings on color waste
• The Renoir digital inkjet machine has a Green Label certificate

Sustainability and savings
Digital inkjet technology makes efficient use of materials, water and energy, leading to production cost savings and environmental benefits.
• Savings on energy: up to 60%
• Savings on water: up to 80%
• Savings on inks: up to 90%
• Savings on colour waste: up to 90%
• Reduced stock: up to 70%
• Improved sustainability