TECHNIJET DIGITAL

Swift-jet

On-demand pre-treatment

The future of digital textile printing

- Water savings
- Energy savings
- Chemical savings

www.swift-jet.com

Patents Approved

TECHNIJET DIGITAL

Swift-jet

On-demand pre-treatment for digital printing

- Patented high pressure spray technology
- Patented fabric drying technology
- Reduces pre-treatment volumes by up to 70%
- Significantly reduces energy requirements

The future of digital textile printing

It was thought to be impossible - A start and stop on demand application process for digital print preparation.

Swift-jet provides an on demand application process for digital print preparation, with rapid start and stop on demand. Following surface cleaning Swift-jet uses a patented high pressure spray technology to apply a consistent application of pre-treatment chemistry to PFP fabric, it then undertakes a drying process using its unique patented scanning drying technology before presenting the fabric for printing. All processes are contactless with full digital control for exacting results and optimum performance

Swift-jet has achieved an industrial step change that was previously thought to be impossible.

> **Swift-jet is an innovation that allows rapid response and flexibility whilst minimising process costs. Without doubt it will become essential equipment for any modern day textile printing facility.**

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Process control for all business sizes

Swift-jet is designed for all digital print businesses, from 150,000 m² to 1 million m² /annum throughput.

Large businesses potential annual savings

When operating Swift-jet compared to conventional textile processing methods:

Calculation based on 1 million m²/annum

Water savings
+65 tons

Equivalent energy savings
+700,000 KWHs

Chemical savings
+7 tons

Small businesses potential annual savings

When operating Swift-jet compared to outsourced textile processing methods:

Calculation based on printing a minimum of 150,000 m² /annum.

Typical payback

Under 2 years

Calculate how much your business could save.
Visit: www.swift-jet.com or scan this QR code on your mobile device

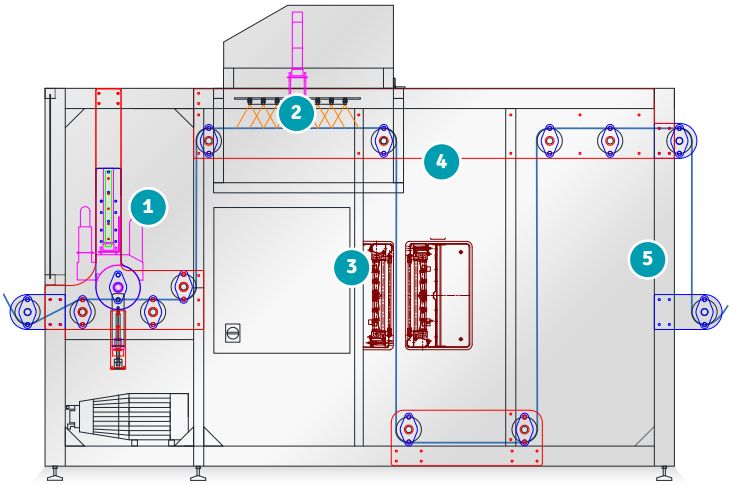
Swift-jet benefits

Swift-jet allows small batch quantities, or direct to print on demand.

- Rapid response to process requirements
- Creates an on time production process
- Dramatically reduces energy and chemical consumption
- Suitable for small and large batches
- Minimal space requirements
- Limits down time, stock holding and capital requirements

Find out more: call us on: +44 (0)15242 73000 or email: swift-jet@technijet.com

Innovative contactless technology - how it works



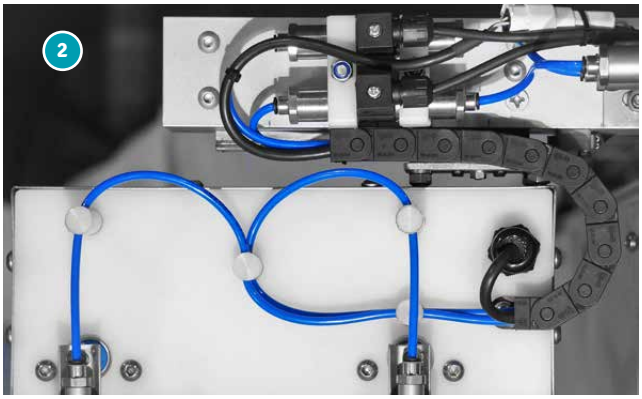
Patented processes

The unique patented processes used by Swift-jet allow for optimisation of fabric pre-treatment prior to digital printing.

The patented contactless application technology uses a combination of processes fluid control and advanced software to ensure the correct amounts of pre-treatment fluids are delivered and uniformly dispersed onto the fabric optimising the digital print result.

This minimises the chemicals required, saving raw material costs whilst also significantly reducing the energy used within the process.

Combined with its patented drying technology, Swift-jet is able to deliver fabric directly into the printing departments as required and on demand, creating an on time production and process to limit down time, stock holdings and capital requirements.



Cleaning the fabric

Rotovac technology is used to clean the fabric surface

The utilisation of Rotovac technology can further reduce printing faults, by the mechanism of continual cleaning of the fabric surface prior to spray coating the final print performance can be enhanced. Rotovac is therefore an essential part of the overall process and print system, by ensuring the fabric surface is free from any loose lint and dust.

Spray coating

Technijet's Rapid Uniform Spray Technology 'TRUST' is unique in many ways

The fully patented design utilises a high pressure fluid system with mechanically atomised oscillating spray systems to control a consistent spray coating.

Optimisation of the spray system minimises the coating fluids needed whilst still achieving the desired print results and technical performance for the final product.

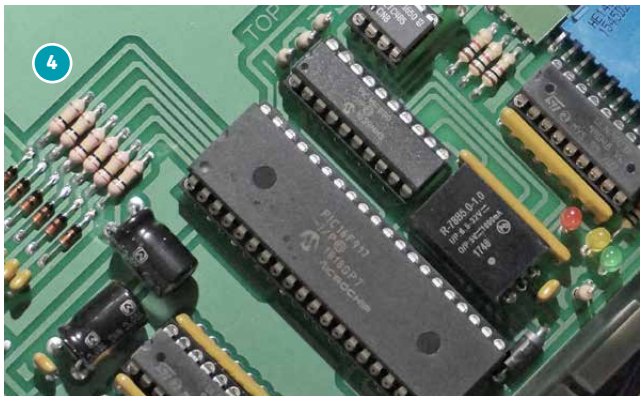
The coating solution is continually monitored to ensure viscosity, pressure, flow, and evenness of the application.

Infrared Drying

Technijet Scanning Dryer System

Once the fabric is successfully spray coated it travels automatically into the drying zone, which is also a stop and start process.

The drying system is extremely efficient through its unique patented technology and design, it offers the ultimate in output control by using a scanning infrared drying process combined with surface air impingement to ensure fabric is delivered to the next stage of the process in optimum condition.



Software Control

The Swift-jet dedicated software offers the optimum in performance control

The Swift-jet operating system and software offers full control and repeatability over every step of the process, it ensures each process step is undertaken correctly whilst recording every detail.

Modular software systems offer the end user ultimate machine control, opening up new variables for fabric preparation and digital print machine optimisation.

TYPICAL APPLICATION SPEED

up to 200 m²/h*

ENERGY USED

m² = 0.08 KWh*

*Based on pigment print preparation

Roll winding or batching

Intelligent unwinding and rewinding

An essential part of the operation is to ensure the process fabrics are handled correctly and effectively.

Through Swift-jets intelligent unwind and rewind systems it is possible to identify stable and unstable fabrics, as well as correct roll rotation and identifying if sufficient fabric is available for the planned process. A self-centering feature and the ability to identify the end of roll with automatic shutdown, ensures no unnecessary re-threading or unplanned stoppages and down time.

As standard small roll handling is up to 100m, large roll handling can be achieved via A frame integration and configuration on request.

Watch how Swift-jet works
Visit: www.swift-jet.com
or scan this QR code on your mobile device

Swift-jet Seeing is believing

TRUST - Technijet's Rapid Uniform Spray Technology

The patented spray system ensures a consistent and even coating using a technique known as 'TRUST'.

This unique combination of technologies ensures consistency of the spray coating at minimal operating levels, reducing chemical costs and water, leading onto significant reductions in energy.

The unique single sided spray coating process is visibly remarkable:

No pre-treatment
Low colour yield and poor print mark. Ink appears pale and soak through is visible on reverse

Transition area
Demonstrates the Swift-jet contactless pre-treatment process

Swift-jet pre-treated
Colour is solid, vivid and rich with no ink soak through to the reverse

No pre-treatment
The print has passed through to the back the fabric

Transition area

Swift-jet pre-treated
Colours are vibrant and rich with uniformity and minimal strike through

Swift-jet spray pre-treatment for pigment printing is like no other

Extensive research and development of pigment pre-treatment chemistry has led to significant improvements over the standard conventional process.

Swift-jets specially formulated pre-treatment solution gives outstanding results whilst ensuring minimal application levels. The solution is designed specifically for the Swift-jet spray application method and is unlike any other standard formulation.

The single sided application process enables standardisation of application volumes across a range of fabric types and weights, to the extent that all fabrics can now be treated in the same way.

No longer is there a relationship between fabric weight and application volumes, process speeds or energy used.

All fabrics receive the same application so the heavier the fabric the more you save.

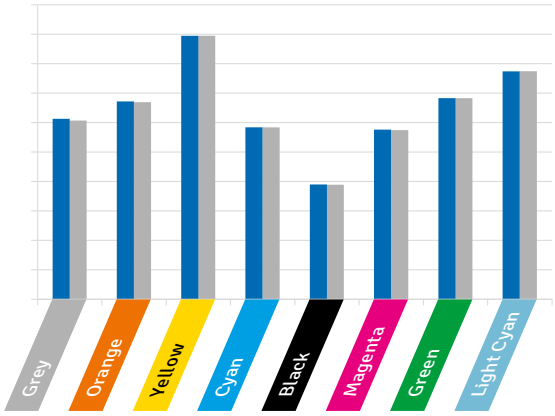
Premium repeatable results

Swift-jet produces like for like print results when compared to conventional pre-treatment processes

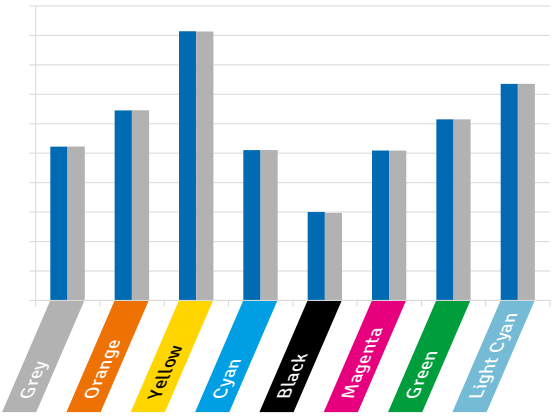
The following illustrated test data relates to a pigment print process utilising Swift-jet applied pre-treatment solution in comparison to a conventional process, whilst utilising the same base fabric and digital print machine.

Tests prove that Swift-jet gives the same or better results than conventional pre-treatment processes

L * 500x600 100% ink



L * 500x600 200% ink



Swift-Jet Spray Conventional process

(L* Measurement data : Illuminant D65, Observer angle 10°, Density Status A, No filter)

Comparable wet rub tests and results

Tests conducted	Swift-jet sprayed results		Conventional process results	
A	LK	4-5	LK	4-5
B	O	3-4	O	3-4
C	Y	4-5	Y	4-5
D	C	4	C	4
E	K	3-4	K	3-4
F	M	4	M	4
G	G	3-4	G	3-4
H	LC	4-5	LC	4-5

The aim of the controlled test was simply to demonstrate the comparable print performance and test data whilst recognising the process cost reductions.

Fabric used was a woven cotton 160 grams / m² and Swift-jet spray treatment was applied at 50grams / m² with the conventional process operating with the normal standards of 70% wet pick up (110grams / m²)

Printing was undertaken on the most up to date DURST ALPHA 190 Multi Pass textile print machine using the DURST Greentex Pigment ink system.

Once printed and polymerised the L* value for all eight primary colours where measured along with dry and wet rub testing to M&S C08 / BS EN ISO 105-X12.

Download the full report
Visit: www.swift-jet.com
or scan this QR code on your mobile device

In conclusion

As a minimum there is **no visual or measurable difference** between the L* values and wet rub tests for the sprayed or conventionally processed fabric when pigment printed.

There is a significant cost reduction from the conventional process techniques by using the new Swift-jet technology.

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