

discovery



BREAKTHROUGH LAB SYSTEM

ASSESS ALCHEMIE'S
CLEAN-TECH PRODUCTION
DIGITAL DYEING
TECHNOLOGY



Alchemie

ABOUT ALCHEMIE TECHNOLOGY



REIMAGINING THE TEXTILE INDUSTRY

- Based in Cambridge, UK's foremost innovation hub
- The company was founded in 2013 to target a growing need for clean digital technologies in the textile industry
- Spent six years developing landmark disruptive patent-protected core technologies that enable low-energy, low-water textile dyeing and finishing processes
- Our unique Jetronica nozzles are manufactured to medical device quality and utilise a piezoceramic element to accurately apply nanolitre droplets of dye onto the fabric
- Alchemie are reimagining the textile industry by partnering with major brands and their high capability, innovative suppliers.

OUR BREAKTHROUGH PROPRIETARY TECHNOLOGY

Born out of inkjet and developed to be the best-in-class digital liquid application solution, Alchemie combines a large droplet size and high droplet velocity to deliver unrivalled penetration into the textile.

INKJET

- Picolitre (1×10^{-12} litre) drops
- Loses velocity and momentum rapidly
- Can only print onto a surface
- Unable to penetrate a fabric
- Too expensive

ALCHEMIE

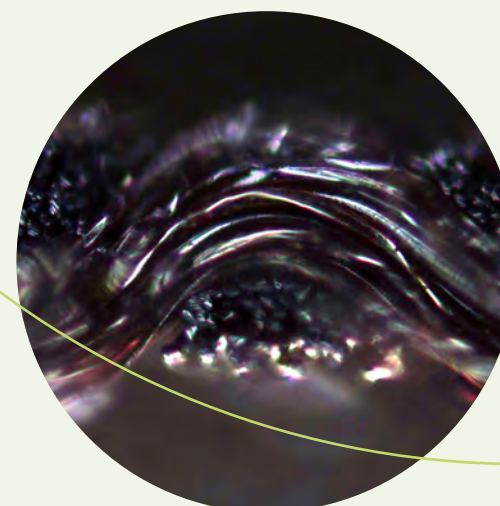
- Nanolitre (1×10^{-9} litre) drops
- Maintains velocity and momentum
- High precision
- Penetrates the fabric
- Low cost

SPRAY

- Wide range of drop sizes
- Range of velocity and direction with variable momentum
- Very little control
- Penetrates the fabric
- Cheap

UNIQUE AND PRECISE 10-MICRON DROPLETS DESIGNED TO PENETRATE THE WEAVE, AND COAT THE FIBRE

- Designed as a highly sophisticated medical device set to revolutionise textile dyeing and finishing
- Unique and precise 10-micron droplets designed to penetrate the weave and coat the fibre
- No restriction of colour or dyestuffs – a wide range of dyestuffs supported
- Clean-technology solution for a modern working environment
- Supports the move to electrification
- Does not require access to large volumes of water and energy



Electron microscopy image of Endeavour™ dyed polyester textile



BE AT THE FOREFRONT OF DIGITAL DYEING INNOVATION

THE FUTURE FOR DIGITAL DYEING IS HERE

Assess Alchemie's Endeavour™ clean-tech production digital dyeing technology

Discovery is a low-cost lab system that replicates the production of Endeavour™ and provides a hands-on understanding of our breakthrough digital liquid application solution.

Discovery generates dye recipes and fast colour matching, eliminating traditional lab dip processes, enabling a hassle-free dye recipe-to-production.

ENDEAVOUR™ LOW-ENERGY, LOW-WATER TEXTILE DYEING



ENERGY
REDUCTION
UP TO 85%



WASTE WATER
REDUCTION
UP TO 95%



CHEMISTRY
REDUCTION
UP TO 30%



Build a colour
recipe library
quickly and safely



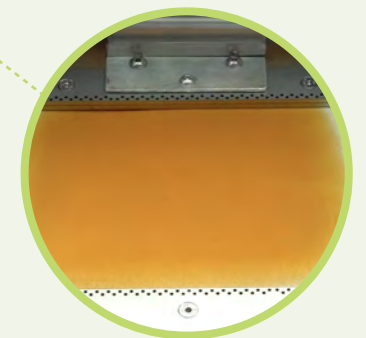
Full digital Control
with addressable
nozzles



Precise 10-micron
droplet control of
20,000,000 drops
in an A5 area



Easy colour change
and formulation
development

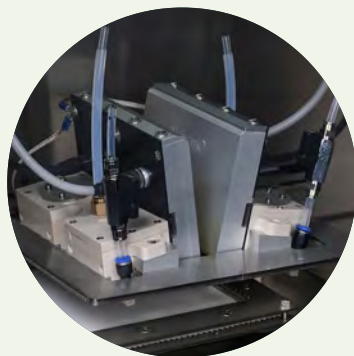


Simple process to
colour match
samples



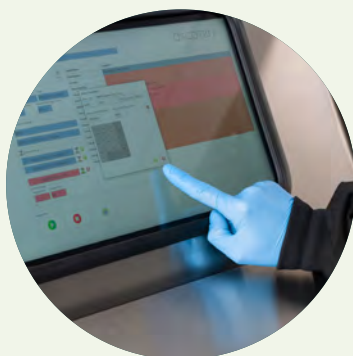
Unique designer
capability to create
new effects

KEY FEATURES



ACCURACY AND PRECISION

- Two non-contact jet dye applicators with Jetronica nozzles
- Precise 10-micron droplet control
- Easy colour change and formulation development
- Pin frame sample holder
- Controllable penetration



DATA ACQUISITION AND RECIPE EXPORT

- Integrated Alchemie software for seamless data transfer to Endeavour™
- Simple process to colour match samples
- Build a colour recipe library quickly and safely



EASY TO MAINTAIN

- Remote machine monitoring for effective maintenance and troubleshooting
- Easily replaceable parts to reduce waste
- All nozzles can be restored if formulation not correct



VERSATILITY

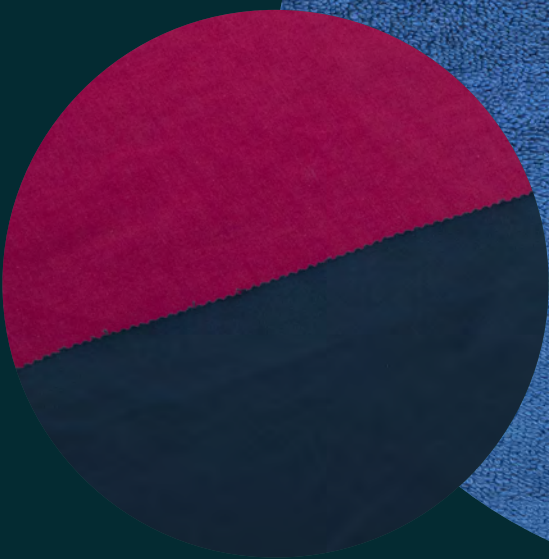
- Complete colouration of the fibres
- Trial any fabrics with a wide range of colourants
- Unique designer capability to create new effects

EXCEPTIONAL VERSATILITY AND QUALITY

The versatility of our digital liquid application technology allows us to meet industry performance requirements using a wide range of commercially available colourants.

All fabrics are structurally and chemically different. Discovery can dye any fabric with a wide range of colourants.

Examples pictured:



Composition: 100% cotton
Weight: 245 gsm
Dye: DyStar® Levafix® Red

Composition: 100% cotton
Weight: 195 gsm
Dye: Remazol Navy Blue

Composition: 100% cotton
Weight: 400 gsm
Dye: Levafix® Blue CA

DISCOVERY TECHNICAL SPECIFICATION

Negative pressure airflow control	✓
Finished sample size	15cm x 21cm (A5)
Recipe storage	✓
Line speed	15m/min
Dye supply	Manual injection
Jetting	Automated
Changeover	Manual
Machine dimensions	1550mm (L) x 640mm (W) x 1430mm (H)
Touchscreen dimensions	386mm (L) x 238mm (W) x 41mm (H)
Machine control	Software controlled
Power requirements	Single phase, 220-230V, 16A, 50/60 Hz
Compressed air supply	0.2 bar, 10mm O.D. barb fitting



CREATING A WORLD WITH ZERO POLLUTION FROM TEXTILE DYEING AND FINISHING

The textile industry is one of the biggest polluters on the planet, generating 3% of global CO2 emissions, and the second largest cause of industrial global wastewater pollution. Alchemie's mission is to ignite change to eliminate the environmental impact of these polluting processes. At current consumption growth rates, textile dyeing could be responsible for 10% of global CO2 emissions by 2050.

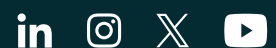
To address this urgent issue Alchemie Technology developed breakthrough digital dyeing and finishing technologies that deliver a dramatic reduction in energy consumption and eliminate contaminated wastewater emissions.



Contact our Product Specialist today
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