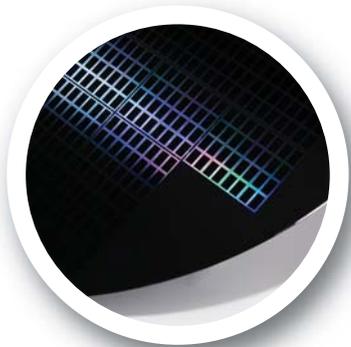


# Advanced Manufacturing



## Xaar 1003 AMp

- .....  
Precise fluid control
- .....  
Unrivalled reliability
- .....  
Extreme versatility
- .....

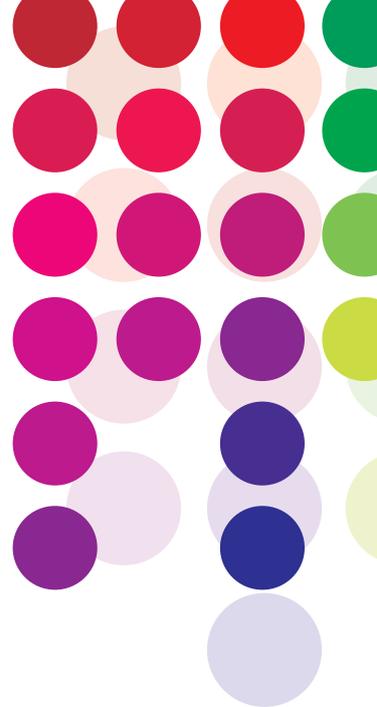
## Print as a manufacturing process

Manufacturers are increasingly looking to inkjet, as a digital and additive process, to drive down the cost of manufactured goods across a broad range of industries. A reduction in processes, fewer consumables, less material waste, all contribute to improved manufacturing efficiency whilst the ability to print on demand allows for customisation and personalisation.

Industrial inkjet is all about placing a specific volume of fluid, a droplet, as accurately as possible onto a surface and repeating this consistently at high speed in a manufacturing environment. The droplet can be used to create a fine feature, or a uniform or patterned coating on a wide range of substrates such as silicon, glass and film; in addition, because inkjet is a non-contact process, it is possible to apply this to raised or textured surfaces.

The technology built into Xaar's latest range of advanced printheads allows inkjet to be applied in both scanning and single-pass modes making digital inkjet printing a realistic choice for high output in-line batch and roll-to-roll production.

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## Benefits of digital inkjet

### Controlled fluid deposition

- Fluid deposition using digital inkjet technology is extremely predictable and repeatable, allowing for more precise control than can be achieved with analogue processes
- Many functional fluids are expensive, but inkjet repeatedly delivers precise volumes to where it is needed, minimising fluid wastage and saving cost
- The nature of inkjet allows fluid deposition onto pre-textured surfaces and the building up of multiple (potentially different) layers.

### Efficient processing

- Digital inkjet technology avoids tooling, materials and set up procedures; replacing multiple processes to achieve faster turnaround times and lower production costs
- With demand for ever thinner, more fragile substrates such as glass and silicon, the non-contact nature of inkjet helps reduce in-line breakage.

### Flexible integration and manufacturing

- Each pattern digitally produced can be different, reducing batch sizes and inventory and shortening time-to-market
- Individual printheads can be grouped together to increase resolution and productivity and are scalable across any print width.

## Benefits of Xaar 1003

### Precise fluid control

The Xaar 1003 AMP is designed for applications where tight control of fluid deposition is required. It can repeatedly jet fluid volumes tuned to a sub-drop range of between 1 and 3 pL with an extremely high degree of accuracy:

- 1000 Optimised Geometry nozzles ensure precise jetting and consistent drop volume across the printhead, even with fluids with a high solids content and/or high viscosity
- TF Technology™ ensures even distribution of temperature across the printhead for consistent drop formation and uniform, repeatable fluid deposition

- XaarDOT™ is used to optimise drop size, drop formation and fluid performance to achieve the ideal combination of quality and speed for each specific application
- Greyscale operation allows the jetting of variable drop volumes within a single pattern to control coating thickness and can be used to counter optical effects such as banding and 'Mura'.

### Unrivalled reliability

The Xaar 1003 printhead is designed to deliver maximum production uptime with minimum operator intervention which ensures high production output and a fast return on investment.

- TF Technology™ (fluid recirculation) ensures continuous fluid flow at a high rate directly past the back of the nozzle during drop ejection. This means that fluids are in constant motion keeping particles evenly distributed in suspension and the nozzles primed, which radically improves reliability even in the most challenging of industrial applications
- TF Technology™ ensures that the printhead is self-priming; therefore maintenance cycles are short and start-up is instantaneous
- The Xaar 1003 AMP recovers quickly from mechanical shock so that production interruptions and operator intervention are minimised.

### Extreme versatility

The design of the Xaar 1003 AMP enables the use of a wide range of fluids and configuration options. This is complemented by Xaar's systems components which are optimised for the Xaar 1003 product family and ensure simple and rapid integration:

- The Xaar 1003 AMP can jet fluids with a broad viscosity range and TF Technology™ keeps the fluid in constant motion. This prevents sedimentation and nozzle blocking which is particularly important when using fluids with a high solids content, including metallic particulates
- The Xaar 1003 AMP is fully scalable to enable simple integration of multiple printheads into larger jetting arrays
- Xaar's systems components, including XPM, XUSB, HPC3 and Hydra, are designed to optimise the performance of the Xaar 1003; they are also easy to configure and integrate, reducing time-to-market.



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