

Xaar 1003 AMx



Highly accurate fluid deposition for manufacturing

Xaar's Advanced Manufacturing printheads are designed to allow our partners to develop customised manufacturing solutions based on a proven high performance industrial inkjet platform. The Xaar 1003 AMx is the latest addition to this range of market-leading piezoelectric drop-on-demand printheads.

The Xaar 1003 AMx is perfect for small drop fluid deposition on an industrial scale and is capable of consistently jetting droplets as small as 6 pL for the production of fine features, patterns and coatings. The combination of **highly accurate, small drops** and **unrivalled reliability** enables the industrialisation of advanced manufacturing processes in sectors such as display, PCB, semiconductors and photovoltaics.

Many applications require tight regulation of coating thicknesses, precise patterns and management of substrate surface characteristics. The Xaar 1003 AMx combines **highly accurate drop placement, consistent drop volume** and **high frequency jetting with variable drop size capability** to deliver the precise fluid control essential for these processes.

The Xaar 1003 AMx incorporates the unbeatable combination of Xaar's TF Technology® and Hybrid Side-Shooter® architecture. This unique arrangement ensures that the printhead delivers unrivalled reliability even in the most challenging of industrial applications. A series of **special internal and external coatings** enable the printhead to jet a range of corrosive and reactive functional fluids. Combined with TF Technology® these features enable a long running time with functional fluids and reduced maintenance.

Xaar is a world-leader in the development and manufacture of industrial inkjet technologies with over 25 years' experience in this field. The company has state-of-the-art manufacturing facilities in the UK and exports its printheads to manufacturers around the world.

Xaar 1003 AMx

Precise fluid control

Unrivalled reliability

Extreme versatility

Xaar 1003 AMx



Precise fluid control

The Xaar 1003 AMx is designed for applications where tight control of fluid deposition is required. It can repeatedly jet fluid volumes tuned to a 6 pL drop 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, high viscosity or corrosive properties
- TF Technology® ensures even distribution of temperature across the printhead for consistent drop formation and uniform, repeatable fluid deposition
- Six greyscale levels allow 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 AMx 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
- Specialised internal and external coatings prevent corrosive and reactive functional fluids from ingressing and possibly damaging the printhead. This increases uptime and decreases maintenance frequency for a longer printhead life

- TF Technology® ensures that the printhead is self-priming; therefore maintenance cycles are short and start-up is instantaneous
- Actuator performance in each printhead is optimised with Xaar's Tuned Actuator Manufacturing. This process ensures full scalability with a simple and quick set up, streamlining printhead replacement, and achieves consistent print quality across long print bars with multiple printheads, at different greyscale levels.

Extreme versatility

The design of the Xaar 1003 AMx enables the use of a wide range of corrosive and reactive functional fluids. 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 AMx 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 AMx is fully scalable to enable simple integration of multiple printheads into larger jetting arrays
- Xaar's systems components, including the Xaar Print Manager (XPM) and Xaar's Ink Supply Systems, are designed to optimise the performance of the Xaar 1003 AMx; they are also easy to configure and integrate, reducing time-to-market.



Physical attributes

Physical attributes	Xaar 1003 AMx
Active nozzles	1000
Print swathe width	70.5 mm
Number of rows	2
Nozzle pitch (interleaved)	23.5 µm
Drop velocity*	7 m/s
Nozzle density (nozzles per inch)	360 npi
Print addressability (x,y)	360 x 720 dpi

* Dependent on fluid used and system integration

Physical attributes

Physical attributes	Xaar 1003 AMx
Printhead weight (dry)	144 g
Fluid base	Solvent, UV, Oil
Subdrop volume*	6-42 pL
Number of grey levels*	Up to 6
Typical firing frequency*	6 kHz
Dimensions (WxDxH)	125x30x60 mm

Approved inks

Xaar provides a service to evaluate and approve functional fluids for the Xaar 1003 AM printhead family.



XAAR®

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