Our Printhead business unit focuses on the design, manufacture, marketing and sales of printheads and associated products which are used in a variety of applications such as Ceramic Tile Decoration, Graphics, Décor, Textiles, Labels and Packaging as well as 3D Printing and Additive Manufacturing.

Revenue segment

Markets

Industrial	54%
Packaging	33%
Graphic Arts	12%
Royalty	1%

The Xaar Aquinox launch is a significant achievement for the Company.

2022 update

A significant amount of time and resource across the Printhead business has been dedicated during 2022 to the launch of the Xaar Aquinox, Xaar's first bulk aqueous printhead which represents a great achievement for the entire Company.

The enabling technologies, grouped together under the aQ Power Technology brand, aQ Power, work together to increase printhead lifespan and durability when printing water-based fluids. Every single process in the production line, for example, has required some change or investigation of change to be able to manufacture the printheads. Investment in the launch campaign was focused on delivering impact, targeting three main sectors – Textiles, Packaging and Ceramics. The commercial team used a deep dive into the industry drivers in these sectors, alongside market research to determine the key players to underpin the launch strategy and campaign messaging. As a result we achieved over 450 sign ups to watch the launch presentation, with early engagement and lead generation metrics from the launch campaign much higher than those from previous launches.

See page 10 for fuller information on the Xaar Aquinox

Over the course of the year, the printhead business has made good progress, for example, our customer base has increased by 91 customers, and the launch of the Xaar Aquinox gives us access to new markets, particularly textiles and packaging (such as corrugated packaging), and will help us to develop existing markets such as ceramics (printing water based glazes).

We have also been working with customers in PCB markets (legend printing in particular, with an opportunity to explore solder mask printing in the future). Our Ultra High Viscosity Technology gives us advantages for 3D printing and we have projects ongoing with new OEMs in China.

See pages 12 to 15

In addition to the Aquinox, we have also launched the Xaar Versatex print engine, for inexperienced UDIs, and the small drop Xaar Nitrox Elite GS3 printhead for OEMs developing print systems for label and graphic applications, and also functional fluid applications, such as PCB printing.

The upgrade of our printhead manufacturing facility in Huntingdon has also been a major focus in the second half of the year. Substantial time has been spent planning for the upgrade which started in earnest in January 2023 and will deliver modernisation of our manufacturing capabilities as well as improved efficiency, yields and reduced product costs in the longer term as a result. We have invested in working capital to ensure we are able to meet fully all customer demands whilst the factory is closed for the work to be carried out.

Other developments in the Printhead business included opening a new Technology Centre in Sweden which houses our Advanced Applications and Technologies team.

Based at Campus Solna in Stockholm, and at nearly 400 m^2, it is twice the size of the previous facility and houses a state-of-the-art laboratory with new equipment, offices, and meeting spaces for engineers, scientists and visitors to work within. The expansion provides Xaar with the ideal environment for its continuous research into the transformative potential of inkjet technologies and opportunities.

Xaar's base in Sweden has played a key role in its R&D projects for many years, as well as supporting customers in the development and use of inkjet technologies. From their new site, the team will continue to work closely across both internal and external projects, liaising with manufacturers, fluid formulators and specialist printer makers to help bring new processes to market using Xaar's printheads and technologies across numerous markets.

In China, we opened a new state-of-the-art inkjet printing laboratory in Shenzhen, comprising the latest printhead test equipment and print process experimentation platforms. The focus of the lab is to provide Xaar's customers and partners in China, including scientific research institutions, a variety of services such as sample printing, solution development, printhead nozzle status detection and waveform adjustments for new applications, providing a printing solution showcase and technical consultation for the greater use of inkjet technologies. Sectors supported include Ceramics, Glass, PCB, Textiles, 3D printing, Packaging and Labels, with inkjet printing support provided locally to help customers develop more targeted application solutions and achieve faster innovation cycles, all whilst reducing their R&D investment.

The Inkjet Opportunity

The principal focus of our strategy is selling printheads. We can do this more effectively by providing an integrated service to our UDI and OEM customers.

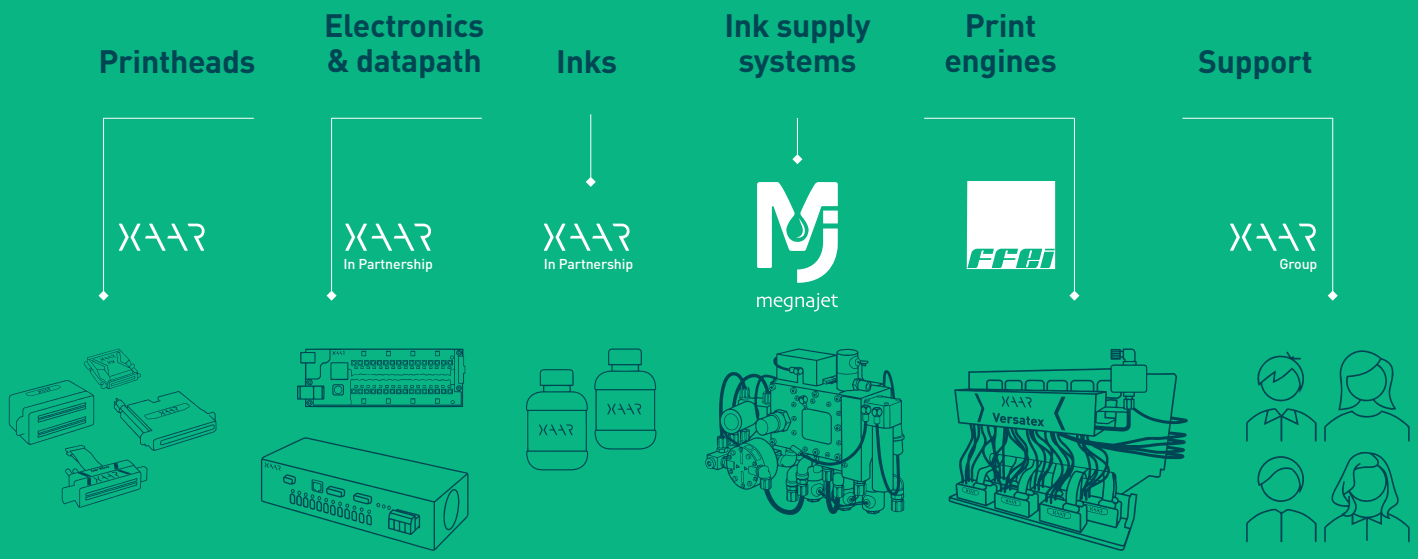
Their success depends in part on a cost effective product development process, getting their products successfully and quickly to market, and maintaining product stability throughout the product lifetime.

Customers who have less experience of inkjet development projects, such as the User Developer Integrators, or OEMs moving into a new application area, are looking for a dedicated, experienced inkjet partner for printheads, sub systems (electronics, software and ink supply systems) and ink, as well as for print engines right up to fully customised solutions.

We are therefore focused on providing an integrated solution whereby our customers can access more of the printing ecosystem (the supporting elements such as ink supply systems and the electronics required for printing) – as well as the print technology (the printheads). This will help us to sell more printheads.

Through a combination of organic growth and acquisitions, we now have the capability to supply all of these components to our customers.

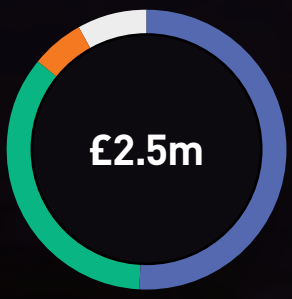
With the acquisitions of Megnajet and FFEI, alongside close strategic partnerships with electronics and ink suppliers, we have become a one-stop shop for our customers, making Xaar the best choice for performance and also ease of adoption, helping to shorten OEMs' development time.



Megnajet

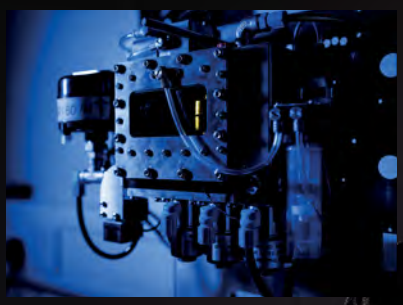
Based in Northamptonshire, UK, fluid systems specialist Megnajet provides robust, reliable, easy to integrate products so that OEMs can get to market quickly with reduced development costs.

Revenue segment



Revenue by region

Americas	51%
EMEA	35%
Japan	6%
Other	8%



HV LFR fluid management system is for wider printing applications, capable of supplying fluid for up to five individual outlets.

Labjet Gravity is a syringe-based gravity fed fluid management system, ideal for evaluating small volumes of fluids in a laboratory environment with industrial components.

2022 progress

Since acquisition by Xaar in March 2022, Megnajet has made good progress, despite supply shortages for the first half of the year. This was proactively managed through a combination of build prioritisation and setting customer expectations.

We also embarked on the first phase of the site improvements, with the focus on the employee facilities. Phase 2 is currently underway moving our assembly operation into a larger space at the rear of the facility, increasing our future capacity and efficiency in preparation for 2023. We recovered the backlog of work caused by supply issues, hitting record production volumes and revenues in Megnajet's 11-year history.

Collaboration with the wider Xaar Group has been key for Megnajet this year as we aligned ourselves with Group systems, software and methodologies.

IT infrastructure changes enabled wider communications; operational processes allowed for better planning, team awareness and training; Epicor integration has given us increased control and structure to our business; and centralisation of R&D within Group allows Megnajet to focus on customer requirements, product management and service. We presented our first Monthly Operations Review in April thereby aligning with Company reporting fairly early after acquisition, supported by regular commercial and financial updates to track the health of the business.

Our digital imaging company, FFEI Ltd, based in Hemel Hempstead, UK, focuses on high performance digital imaging solutions – from digital inkjet label presses to digital pathology scanners.

Revenue segment

Markets

Inkjet	52%
Life Sciences	48%

2022 progress

This year has seen a significant amount of change for FFEI not least in the leadership team, following the departure of Andy Cook and Julian Payne, after many years of much valued service to the company.

FFEI spent much of the year making good progress with adopting the Xaar Group business practices such as embracing the Company values, the adoption of the Tier 1 & 2 meetings which has improved the communication across teams, management reviews with the leadership team, Monthly Operating Reviews and delivering on a product sales plan to more than double the number of units being built and sold by the team compared to 2021. We are delighted to see that the printbars manufactured and sold by FFEI continue to deliver growth particularly in the labels embellishment market in Italy.

On the Life Sciences side of the business, the digital pathology scanner manufactured at FFEI surpassed a milestone of more than 12 months of successful installations and with demand continuing into 2023. In addition, Microscan has shown strong demand in 2022 vs 2021, with Sierra on-boarding new customers across the digital pathology and AI market whilst engaging with return business.

In October 2022 FFEI celebrated its history with a 75th Anniversary celebration of the inception of Crosfield Electronics. FFEI can trace its roots back through FujiFilm, Dupont and De La Rue to 1947 and the formation of Crosfield Electronics. A great day was had by all, including some past employees, and over £900 was raised for the Xaar charity partner, Break.

EPS

Xaar company EPS manufactures and sells a range of highly customised print systems for product print applications, including some using Xaar's inkjet printheads. Examples of product printing include all kinds of industrial and promotional objects such as medical equipment, automotive parts, tools, apparel, appliances, sports equipment and toys.

Revenue segment

Markets

Digital	**66%**
Analogue	**34%**

2022 progress

2022 has seen great progress at EPS, with excellent growth in sales, stronger margins, and excellent profitability.

Under new leadership since April 2021, EPS has this year focused on building a new and strong leadership team.

Restructuring also took place with the Tech Services functions being split into three distinct groups – Production Techs, Field Service Techs, and Applications teams. As part of this plan, the company is developing its team of regional service technicians based strategically across the US to provide better service to customers.

From August EPS added a second production shift for the Machine Shop and Assembly teams to keep up with our growing production volumes, turning around custom build projects faster to minimise the impact of space constraints.

We have been able to significantly invest in the business this year; we added a new Haas CNC machine, a new digital cutter for the plate room, and invested in our XD70 sampling equipment, and many systems upgrades. We've added a new computer server, upgraded our Sage 100c financial software to the 2022 version and implemented the MS Project for our production planning system.