Press Information

Kyocera launches new inkjet printhead "KJ4B-EX1200-RC" with ink recirculation

Industry-leading jetting performance[1] of "KJ4B-EX1200-RC" enhances productivity over a wide range of applications, including commercial printing and package printing.

Kyoto/London, 29th February 2024. Kyocera Corporation has developed a new inkjet printhead with ink recirculation technology at the nozzle. Available in April 2024, the new KJ4B-EX1200-RC (hereinafter "printhead") achieves industry-leading jetting performance[2] over a wide range of printing applications, including commercial printing and package printing, and is compatible with a diverse variety of inks.

Inkjet printhead "KJ4B-EX1200-RC"

Model	KJ4B-EX1200-RC
Dimensions	200.0×58.5×79.3 mm (Width x Depth x Height)
Maximum print speed	101.6 m/min
Resolution	1200 dpi
Effective print width	108.3 mm
Maximum jetting frequency	80 kHz
Maximum drop volume	4.0 pL
Minimum drop volume	2.0 pL
Compatible ink	Aqueous
Development facility	Kagoshima Kokubu Plant (Japan)

Main Features

1. Ink recirculation at the nozzle allows compatibility with a wider variety of inks, including fast-drying inks, over a wider range of applications.
2. Higher productivity, through high driving frequency and greater maximum drop volume.
3. High print quality, through Kyocera's unique monolithic piezo actuator.[3]
4. Enhanced versatility, through standardized electrical interfaces.

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[1] As of February 15, 2024, according Kyocera research.

[2] As of February 15, 2024, according Kyocera research.

[3] Piezo actuator: specialized component that generates ink-jetting power using the piezoelectric effect of fine ceramics.

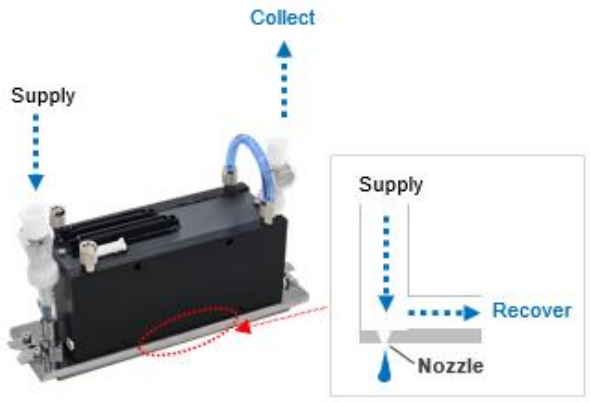
Development Background

Digital printing offers the advantage of immediate, customizable printing in any quantity while reducing environmental impact by eliminating the liquid waste that occurs in plate-cleaning processes. As a result, the demand for digital printing, including inkjet printing, is rapidly expanding from traditional paper media into new applications such as textiles, food-grade packaging, and building materials.

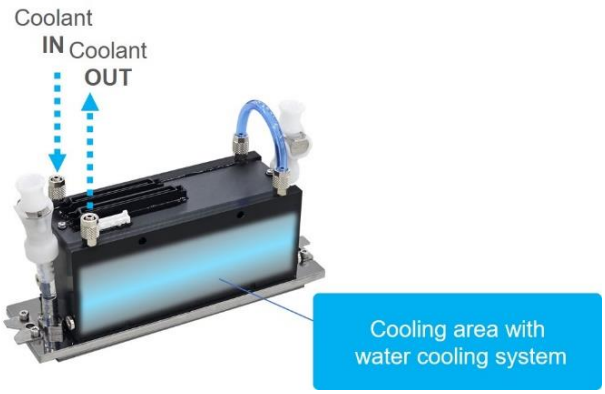
In recent years, ink formulations have been diversified to increase productivity and accommodate a wider range of applications. Consequently, demand is rising for printheads that can handle a wider variety of inks at higher speeds while offering better print resolutions and enhanced durability. Especially in the commercial printing and package printing markets, new printheads must deliver optimized drop volumes to print not only on traditional high-quality papers but also coated papers and films. In addition, as print speeds continue to increase, faster-drying inks are becoming a key priority, placing new compatibility demands on printheads.
The robust design of Kyocera's printhead technology allows stable, continuous printing to enhance productivity in industrial printing operations. As a result, Kyocera will lead the digitalization of the printing industry by reducing the workload of operators and improving labour efficiency.

Features

1. **Ink recirculation at the nozzle allows compatibility with a wider variety of inks, including fast-drying inks, over a wider range of applications.**
   Kyocera's unique technology recirculates ink around the nozzle, which prevents nozzle drying, while promoting temperature uniformity and inhibiting ink sedimentation. These features allow stable printing with various kinds of inks, including fast-drying formulations, while reducing routine maintenance, such as printhead cleaning when rebooting a printer. This new printhead also incorporates a water cooling system[4] as a standard feature, enhancing stability in continuous, high-speed, high-quality printing.



Ink recirculation technology around the nozzles

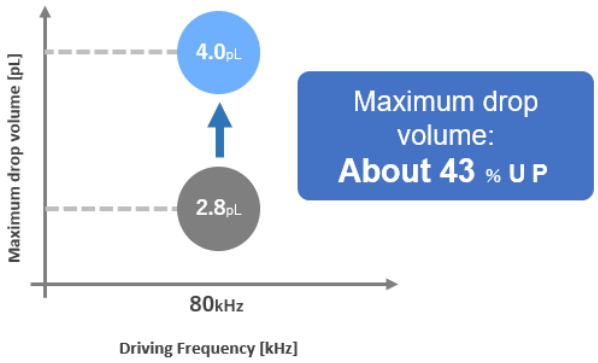


Water cooling system

[4] Heat-transfer method to cool the driving board installed on the printhead.

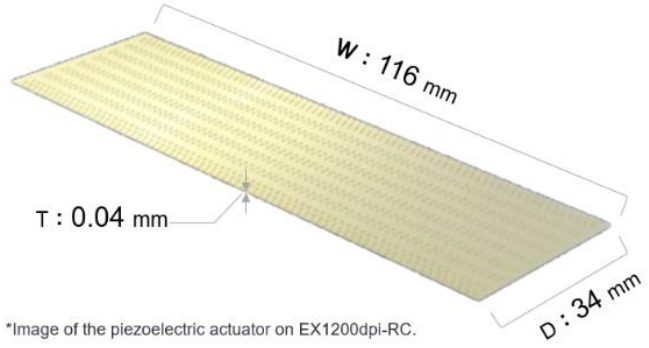
2. Higher productivity through high driving frequency and greater maximum drop volume.

By optimizing the ink-flow-channel design and printhead structure, the maximum drop volume of ink ejected from nozzles has been increased to 4.0 pL, about 43% greater than the previous model at a driving frequency of 80 kHz, with improved jetting stability. Better productivity makes it possible to cover a wider range of media by optimizing drop volumes for commercial printing and package printing segments.



3. High print quality, through Kyocera's unique monolithic piezo actuator.[5]

Kyocera has developed a large monolithic piezoelectric actuator, using proprietary material design technology for dense polycrystalline ceramic actuators, and manufacturing technology for thin piezoelectric ceramic substrates. Kyocera has now optimized and adopted the technology for this printhead (width: 116 mm x depth: 34 mm x thickness: 0.04 mm). By using a large monolithic piezoelectric actuator, Kyocera has achieved uniform image quality within the printhead and higher print quality.



Monolithic piezoelectric actuator

4. Enhanced versatility, through standardized electrical interfaces.

By adopting the same interface as its conventional printhead (KJ4B-1200), Kyocera has reduced the development cost of the driving system and improved device versatility.

Through its advanced technologies, Kyocera will expand the possibilities of digital printing and contribute to the sustainability of the global printing industry.

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[5] Piezo actuator: specialized component that generates ink-jetting power using the piezoelectric effect of fine ceramics.

Information about drupa 2024

Kyocera will exhibit this printhead at the **drupa 2024** international printing and media industry exhibition from May 28th to June 7th, 2024.

Trade fair	drupa 2024
Date	May 28 to June 7, 2024
Venue	Düsseldorf, Germany
Kyocera stand	Düssseldorf Exhibition Centre Hall 10, booth number A11

For more information on Kyocera: www.kyocera.co.uk

About Kyocera

Kyocera has been successful in Europe for over 50 years. From its European headquarters in Esslingen am Neckar, KYOCERA Europe GmbH operates 26 sites including manufacturing facilities, with products ranging from fine ceramics, electronics, automotive, semiconductor and optical components to industrial tools, LCDs, touch solutions, industrial printing components, solar systems and consumer goods such as kitchen and office products.

KYOCERA Europe GmbH is a company of the KYOCERA Corporation headquartered in Kyoto/Japan, a world leader in semiconductor, industrial and automotive components as well as electronic components, printing and multifunction systems, and communications technology. The technology group is one of the world's most experienced manufacturers of smart energy systems, with more than 45 years of industry expertise. The Kyocera Group comprises 297 subsidiaries (31 March 2023). In England, Kyocera has a subsidiary in Frimley, KYOCERA Fineceramics Ltd. With around 81,000 employees, Kyocera generated net annual sales of around EUR 13.87 billion in the 2022/2023 fiscal year.

Kyocera is ranked 672 on Forbes magazine's 'Global 2000' list for 2023, and ranked as 'The 100 Most Sustainably Managed Companies in the World' according to the Wall Street Journal. For the second year in a row, Kyocera qualified for the Dow Jones Sustainability Index (Asia-Pacific). As well, Kyocera receives a Gold rating on EcoVadis Sustainability Survey for the second consecutive year and was acknowledged as a 'Top 100 Global Innovator 2023', being one of the world's leading innovators, for the seventh time by Clarivate.

The company also takes an active interest in cultural affairs. The Kyoto Prize, a prominent international award, is presented each year by the Inamori Foundation — established by Kyocera founder Dr Kazuo Inamori — to individuals worldwide who have contributed significantly to the scientific, cultural, and spiritual betterment of humankind (equivalent to approximately €685,000 per prize category).

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