

02 December 2018 Digital Printing Technologies

Alphajet takes print in new direction

MGI's Alphajet B1 inkjet press is a fundamentally different machine to any that has gone before. The question is where it is ahead of its time, or locked into a deadend.

MGI has shown its revolutionary Alphajet digital press at a show in Paris, two years after demonstrating the extraordinary machine at Drupa.

The prototype press is a modular production line for printing and adding enhancement to a flat sheet including four-colour printing, foil, varnish, application of tags in a single process. MGI calls it "the universal print factory" to underline that it can print anything, not just ink on paper. While at Drupa the Alphajet was very much a concept machine, at All4pack in Paris it has become a working B1 format press aimed at the carton print sector. Very little of the Drupa machine remains, simply the concept of the circular track says a spokesman for MGI.

At the show in Paris, the Alphajet was configured to produce four colour printing, flood and spot varnish, hot foil stamping, raised varnish and hologram printing, necessitating a second pass through this module.

While the application of white ink and varnish will be handled by a UV piezo printhead, the four-colour element is aqueous ink applied by Memjet's Durajet printheads. Subsequent processes call on MGI's experience in digital embellishment, foiling and laying down several passes of varnish for textured effects.

The Alphajet is using the Memjet Duralink second generation printheads. This technology was announced a year ago and this year a spate of partnerships has been announced. Most are for upgrades with existing partnerships in label and flexible packaging print. That with MGI is a breakthrough to propel the Duralink printhead to heavy industrial strength print processes.

Its use of aqueous ink is necessary for packaging that can appeal to food brands, which shy away from printing with UV inks. The Duralink printhead is a thermal drop on demand technology, printing at 1600 nozzles an inch with five levels of redundancy per nozzle and a new design which gives the printhead a longer life over the Memjet Versapass first generation head.

This will give the Alphajet 1,800 B1 sheets an hour throughput. While this is slower than the Heidelberg Primefire 106 (<http://bit.ly/1TUisL>) or the Landa S10 (<http://bit.ly/1RVdLh9>), the MGI machine is also applying enhancement inline, removing at least one process step from carton production.

The Alphajet also differs from standard printing machines in how it transports sheets to be printed and embellished. Each is transported on a tray which itself travels independently under digital control around a circular track with close monitoring of each sheet. This allows each tray to move at a different pace to others, to pause while undergoing a lengthy process or to pass beneath each set of printheads at optimal speeds for that process or material. The precision that is possible through digital control is within 5 microns with software handling any compensation for image stretch or shift.

This transportation method removes the conventional grippers that limit the range of materials that are suitable to pass through a printing press. Consequently the Alphajet can print to folding carton boards, corrugated boards as well as plastics and synthetic materials. A priming coat is applied ahead of the Memjet heads to create a consistent surface to optimise adhesion of the ink.

The supplier was chosen because "Memjet is a global leader in the development of digital inkjet technology that brings an unmatched combination of speed, simplicity and affordability, transforming what is possible in colour printing. Memjet has developed superb core technology with the DuraLink architecture and ink modules", according to MGI.

It means also that modules for additional functions can be added to the line, applying RFID or NFC chips for example, but also holograms or Oled flexible screens. By using a piezo head to work with a silver or possibly a graphene ink, electronic circuits can be printed. MGI's Ceradrop division has experience in printed electronics it can call upon.

The press earned the 2018 Innovation Award from the All4Pack. The next stage will be a field test and then controlled installations, though no announcements have been made in this regard. The company is believed to have identified an initial site, but is saying nothing. However it does anticipate commercial sales beginning at the end of 2019, price dependent on configuration.

Gareth Ward



()

CONCEPT AT DRUPA

The Alphabet made an appearance on MGI's stand at Drupa where few understood that they were looking at a new concept for a printing and finishing machine. Two years down the line, MGI has shown a prototype to wide acclaim at a show in Paris.

Explore more...

The appeal of value added ([k/news/Extra-value-captured-imagination-and-orders-at-Drupa/104382/](#))

Robust approach for Memjet ([/news/Second-generation-Memjet-has-eyes-on-commercial-print-and-packaging/108525/](#))

Log in to My Print Business  (/Log-in)

Create an account  (/Register)