



Even mirrors can be printed.

VALUEJET VJ-426UF AND VJ-1626UH

# Mutoh introduces LED UV in two models

By Herman Hartman

Mutoh introduced two new printers, the ValueJet VJ-426UF and ValueJet VJ-1626UH, at FESPA Digital 2014. Both printers are equipped with a new type of LED UV ink, which will print on various hard substrates.



The ink bonds well and has a high colour intensity.



The movable handle makes it easy to quickly adjust the height.

**T**he VJ-426UF is an entirely new A3 plus flat table printer. The VJ-1626UH is based on the VJ-1617H and will print a maximum width of 1615 mm. Herman Hartman went to take a closer look at both printers at Mutoh in Ostend.

## Not the first

Mutoh is not the first manufacturer to venture into the segment for direct printing of that produces small scale industrial and promotional products, which has its advantages. Development can refer to the existing range on offer. Mutoh, however, did more than that and introduced some exclusive features into its first table top printer. They start with the ink. The printer is equipped with an Epson latest generation, 8 channel print head. Mutoh's LED UV ink does not contain solvents or hazardous air polluting substances and is virtually odourless during and after printing. It does not require extraction.

Our prints illustrated that this is not at the expense of the ink's colour intensity. Two ink configurations are possible, i.e. 2x CMYK or CMYK, 2x Varnish, 2x White. Obviously the print speed is higher in 2 x CMYK configuration, but in the segment in which this printer is being deployed, the use of white, and possibly gloss varnish, is a definite advantage.

The printing substrate is often coloured or occasionally just transparent. The use of white makes it much easier to predict

the colour of the print. The test prints we produced showed that the white ink is quite opaque. Double layer thickness did not particularly enhance it.

## Tables per hour

Mutoh likes to express the print speed in the number of full tables you can occupy per hour. In this segment it is a more realistic indicator of productivity than m2 per hour.



Mutoh ValueJet VJ-426UF.

In 2 x CMYK the maximum production speed (without loading and unloading) amounts to 28 tables per hour, with a print resolution of 720 x 1080 dpi, which is sufficient for a number of applications. The next setting delivers 720 x 1440 dpi. If that is still not enough there is a 1440 x 1440 dpi option, but in view of the considerable reduction in speed at this setting the other two modes will be more commonly selected. The build-up of an extra layer of white or varnish inevitably slows down the production speed of these printers because the nozzle rows on the print head are configured alongside one another.

## Bonding

The hard UV ink bonds with many different materials, although in some cases pre-coating may be necessary. Mutoh is in the process of formulating a material compatibility list. Even though we are talking about a hard UV ink, printing on fairly flexible synthetic materials is not a problem. The layer thickness of the standard CMYK print is fairly thin due to, amongst other things, the curing method, which gives the ink slightly more time to bleed, and the relatively small ink droplet size which varies from 3.8 to 28 pl. If varnish and white are added the layer thickness becomes more perceptible, but remains limited, which enhances scratch resistance.

## Lifetime

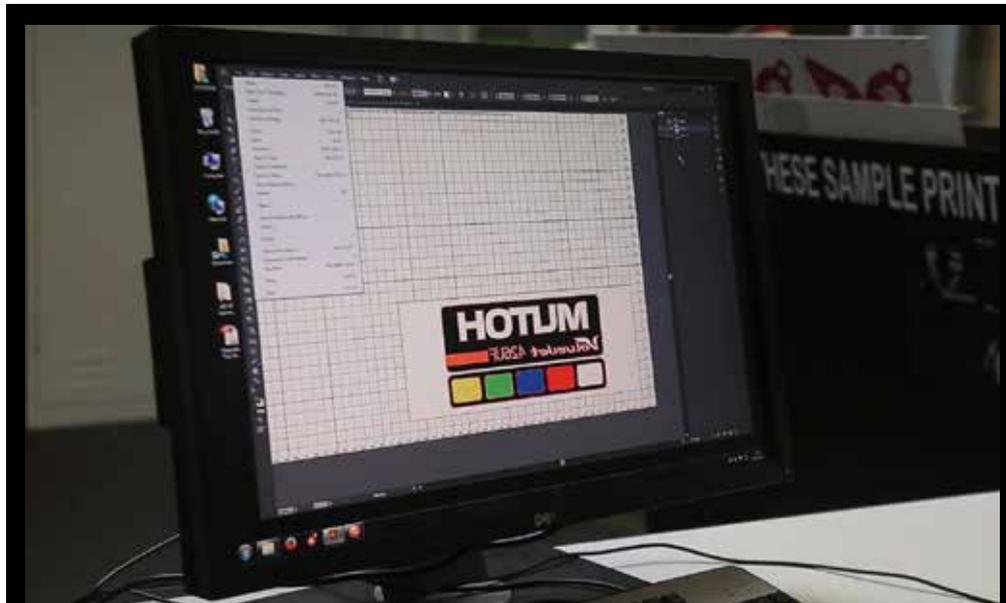
The second element to make the VJ-426UF different is the UV lamp. The quoted service life of the UV lamp is no less than 14,250 hours. It is only lit during actual printing. Assuming 1,000 to 1,500 operating hours per annum, which is a realistic figure, the lamp lasts a lifetime providing the air cooling for the LEDs at the rear continues to operate successfully. The UV light is located on one side of the print head. The distance between the head and UV light source is considerable and lighting can be dosed, which means that the dose for the return run can be adjusted differently during bi-directional printing, which helps prevent the so-called lawnmower effect. The large distance between lamp and print head has another advantage; this printer can also print on mirrored surfaces without the UV light reaching the print head.

## Compact

Mutoh has managed to keep the printer housing quite compact. The print table is positioned in an enclosed housing, which reduces the attraction of dust during printing and provides sufficient protection from the UV light source. Printing progress can be monitored through the transparent yellow hood.

The print table is equipped with a vacuum system. The table measures 483 x 329 mm. The maximum print format is 473 x 319 mm. Objects with a maximum height of 70 mm can be accommodated. Manual height adjustment is located at the front of the printer. The movable handle makes it easy to find the correct height. The printer checks the entire table with a

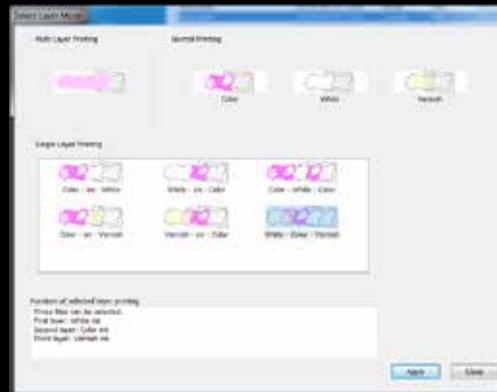
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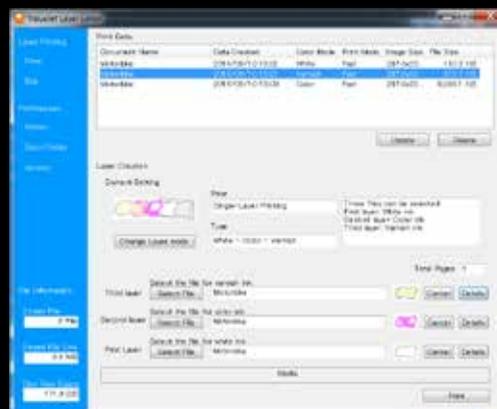
*In Illustrator a Windows driver can be used to print.*



*To prepare layers you print to a folder for Layer Editor.*



*Various options to build up layers in Layer Editor.*



*Ready to print.*

## Smart Windows driver

As usual the ValueJet VJ-426UF can be controlled with an RIP. However, Mutoh has also developed a Windows driver to control the printer. Windows drivers tend to be used in large format CAD printers. Mutoh developed a layer management software tool for the driver, which facilitates the adjustment of white varnish and colour separation. It operates independently from the pro-programme used to produce the print. The file is printed the same number of times as the required layers. They are collated and combined in the layer management tool into several layers. In some cases there's no need to produce separate layers in advance; the same file is printed two or three times. The only follow-up step is to select which layer is coloured or transparent. In theory the printer could be controlled with Microsoft Word, although in practice it is easier to use a programme that supports layers. For example, if loose water droplets are to be applied to create an effect on the print, it will have to be included in a separate layer and printed layer by layer. But again the layer management tool can be used to send the various layers to the printer. This makes it considerably easier to use white and/or transparent alongside full colour. Also, because white can be printed as well, colour management is less relevant. For demanding graphic artists the current driver is still lacking at times. Ink trapping is not possible. With ink trapping the white, for example, is one pixel less than the colour to prevent gaps. And varnish is sometimes given one or two pixels extra to create a smoother edge. If truth be told this is not always necessary. Pad or screen printers printing digitally for the first time can also achieve better results without ink trapping than with multiple colours in screen or pad printing.



The ValueJet 1626UH in Mutoh's showroom is equipped with a new front loading system ensuring that plate material can be positioned even more accurately.



The ValueJet 1626UH.

laser beam for excessively high components before it starts printing. The laser beam remains active during printing to protect the head.

The printer we were shown in Ostend was a pre-production model. The definitive version has fixed installation points on the table, making it easy to quickly exchange and correctly install a complete jig with objects. The vacuum bed ensures that even light objects remain correctly positioned on the table. Mutoh uses a magnetic board, which is placed on the table and kept in place by the vacuum system.

This makes it possible to position objects accurately using magnets. A complete grid is printed on the magnetic board on the printer, which is used, for example, in Adobe Illustrator as an extra layer when preparing the print. As a result even a single item can be printed without much ado.

### Mutoh ValueJet 1626UH

The 1626UH is very similar to the ValueJet 1617H printer, which was introduced earlier. The difference between the two types lies in the ink and corresponding drying system. In both cases a hybrid printer is used, which is equipped to print on both rolls and plate materials at a maximum width

of 161.5 cm. The maximum plate thickness is 15 mm. Both tables are an extra option in the ValueJet 1626UH price list, although they are in fact essential when processing larger plates. Both models use the same 8 channel print head, but on the ValueJet 1626UH it delivers larger droplets of 3.8 to 28 picolitres because of the high viscosity of UV ink. The print modes and speed are consequently not comparable on a one to one basis.

The fields in which both models can be used partly overlap, though there are applications in which one or the other is preferential. The 1626UH can be equipped with both white and varnish, whereas the 1617H can only be equipped with white as an extra ink. At the time of writing the main drawback of the 1626UH is that only a hard ink is available, which means that in practice only rigid materials can be printed. Mutoh is developing a more flexible UV ink to make it possible to print roll materials in the future.

With both printers Mutoh is focusing mainly on (semi) industrial applications in which a few items or small series are printed, although road signage or display printing are feasible also. ■