

Advanced water-washable flexo plates FLENEX FW Series Improves Flexo Plate Making Productivity by Up to Four Times

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In 2014, FUJIFILM Corporation established a flexo printing business encompassing everything from printing machines, to plate materials, plate making equipment, and peripheral systems, and began marketing their FLENEX FW Series of water-washable flexo plates in the European and North American markets. Unlike conventional flexo plate making, FUJIFILM's flexo plate making system is able to develop the plates with only water, a small amount of household dishwashing detergent, and no solvents. Meanwhile, during drupa 2016, FUJIFILM will exhibit its MJP20W UV inkjet press for flexible packaging as a digital printing solution developed for short-run, multi-product package printing market needs. This will be the first time they exhibit the inkjet press outside of Japan as a means of promoting and expanding the market for the press's short-run and variable printing capabilities.

Environmental Awareness Brings Attention to Water-washable Flexo Plate Making



Takuo Watanabe,
General Manager
of the Packaging
Technical Support
Division

Unlike the US and Europe, gravure is the standard printing method for the Japanese flexible packaging printing industry, but pressure to reduce volatile organic compound emissions and work with short-runs of many products has recently led an increasing number of converters to begin considering flexo printing given the ease of setup. In particular, flexo printing using water-based inks greatly improves the working environment, while the increased

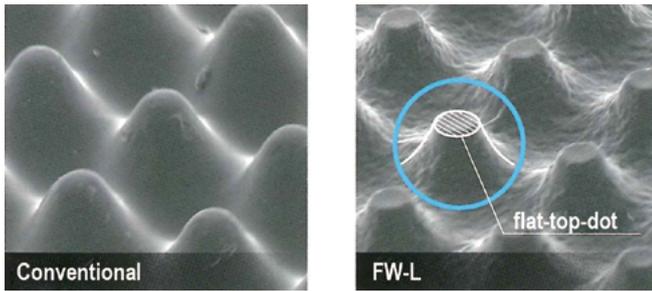
environmental awareness of food and beverage producers has led offset printers faced with a contracting market to enter the water-based flexo printing industry as a means of survival. Meanwhile, in the US and Europe, where flexo printing using solvent-based inks already dominates flexible packaging printing, there has been a shift from solvent-washed plates to water-washable plates as a means of reducing the environmental impact of flexo plate making.

According to Takuo Watanabe, general manager of the Packaging Technical Support Division at FUJIFILM Global Graphic Systems Co., Ltd. (FFGS), a subsidiary of FUJIFILM, companies entering the packaging printing industry in Japan often come from other industries, so FUJIFILM typically recommends these companies adopt direct laser engraving flexo plate systems, which allows customers to begin flexo plate making relatively easily. Meanwhile, in the US and Europe, where many companies have already invested in solvent-washed flexo plate making equipment, FUJIFILM recommends water-washable flexo plates, which can be used with existing exposure machines and require less investment (for the water-washing unit only) than direct engraving plate making systems. The recent tightening of environmental regulations regarding solvents in Japan and around the world has led companies to go beyond simply adopting water-based inks and attempt to reduce the amount of solvent used during plate making. As such, Mr. Watanabe says that increasing interest is being focused on water-washable flexo plates that can be made without using solvents.

Mr. Watanabe also says that, according to laminator manufacturers, nearly half of all newly installed laminators are solvent-free machines. This indicates the rapid withdrawal of post-printing processes from solvent use, and indicates a demand to shift away from the use of solvents in printing and plate making, as well.

Plates in 40 Minutes

FLENEX FW Series water-washable flexo plates have three features. As already mentioned, the first of these is solvent-free plate making. The second is a significantly shorter plate making time. Mr. Watanabe explains that household dishwashing detergent is added to tap water that has been heated to 45 to 50°C to wash the plates. The time required to strip the unexposed parts of the plate is similar to that of solvent-washed plates. What happens next is very different, however. Solvent-washed plates must be dried for roughly 120 minutes, whereas FUJIFILM's water-washable plate making system dries the plates in about 10 minutes; where it takes solvent-wash systems 150 minutes to complete the plate making process,



Enlarged Image Comparing Conventional and Flat-top-dot Type Flexo Plates

water-washable plates are finished in about 40 minutes. In other words, the FUJIFILM system has a maximum productivity nearly four times that of solvent-washed systems.

Swelling of the exposed image area in FUJIFILM's water-washable flexo plates during the water-washing process is minimal, so drying is fast. Although it may seem as though it would not be able to print water-based inks with water-washed plates, the FW Series of water-washable plates, which is designed so that the image section is not affected by water, is able to print UV inks, solvent inks, and water-based inks.

In terms of printing quality, conventional flexo plates are often made with round-top-dots, so the printing pressure greatly deforms the tips, causing significant print quality variation. There are also major problems with the cured sections producing a smaller dot than the actual exposed diameters as a result of oxygen-based polymerization inhibition. The conventional solution to this problem requires complex data processing to obtain a bump curve that compensates for this difference. In contrast, without the need for any additional equipment, the FLENEX FW-L is able to produce flat-top-dots, which accurately reproduce halftones in the range of 1-99%. In this way, printing quality is stable during long-runs. The FLENEX FW series includes mainly two types, the FW-L LAM mask type and the FW-A analog type.

According to Mr. Watanabe, the company is currently also considering expanding sales of its Direct Laser Engraving (DLE) type flexo plates marketed in Japan given the clear increase in demand for seamless printing. The sales target here also includes plate making companies that want to diversify their plate making materials. Internationally, FUJIFILM is focused on expanding sales of its water-washable plates. In Europe, marketing is being handled by FUJIFILM Europe GmbH and in North America by FUJIFILM North America Corporation. In addition to these regional business divisions, the FFGS group also has an ink company (FUJIFILM Speciality Ink Systems Ltd.), which has resulted in a strong share of the nar-

row web market, particularly label printing. Mr. Watanabe says that they want to make good use of this network.

Exhibiting the UV Inkjet Press for Flexible Packaging

FUJIFILM will exhibit the MJP20W UV inkjet press for flexible packaging at drupa 2016, the first time it will have exhibited the machine at an international exhibition outside of Japan.

By using EUCON (Enhanced Under Coating and Nitrogen purging), composed of three new technologies—a high-sensitivity UV ink, an undercoat technology that reduces bleed, and nitrogen purge to reduce UV ink odor, FUJIFILM succeeded in greatly reducing the problems of odor and ink bleed that are common to UV printing technologies. In addition, given that the machine can print stably at 50 m/min, FUJIFILM expects the MJP20W will perform best with the increasing number of short-run flexible package printing jobs in Japan and Europe.

Atsushi Suganuma, senior manager of the Engineering Group Packaging Sales Division at FFGS, explains that digital printing has become fairly common and the MJP20W is starting to be used in the label industry, but the market for digital flexible package printing has yet to emerge. As such, one of their goals for drupa is to show their international customers that a digital printing technology with the functionality and performance necessary as a production system for flexible packaging has already been developed. During IGAS, held last year in Tokyo, they also had visitors that came all the way from Europe to see the differences between the MJP20W and competing on-demand printing machines for flexible packaging. Mr. Suganuma closes by saying that although they see drupa as an opportunity to introduce the unique features of inkjet printing, such as variable printing, they also see it as an opportunity to discover just how much demand there is for short-runs on the market.



MJP20W UV Inkjet Press



Value from Innovation



Fujifilm is a Japanese company, with the cultural characteristics this implies rippling through the organisation and defining the company's personality, values and ethos. Firstly, there is a focus on quality in every aspect of the business. This manifests itself not only in the products the company sells, but also in the manufacturing and logistics infrastructure that supports the business. Secondly, there is a drive to pioneer new ways of doing things through the development of new technologies.

Stand A25 Hall 08b

To find out more

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