

# 'MUJICA', Japan's first deinking device for wide films

## *Automatic plate cylinder exchange using an AMR also unveiled*

Orient Sogyo Co., Ltd.

**M**aterial recycling technology is rapidly being developed to remove the ink from printed film used for flexible packaging and use that film again as film for printing or crush and melt it to make recycled pellets. Orient Sogyo Co., Ltd., a gravure printing press manufacturer, and SAWA Co., Ltd., a manufacturer of ultrasonic cleaning equipment, jointly developed the first Japanese deinking device called "MUJICA" which removes ink from printed film with a maximum substrate width of 1240mm and was presented at TOKYO PACK 2022 held in October. Orient Sogyo also unveiled for the first time the C2-G2 that places heavy plate cylinders in and out of the printing unit using a self-navigating automatic gravure cylinder exchange robot, which is one of the first issues to be addressed when promoting

manpower and labor savings in gravure printing presses.

### Maximum substrate width extended to 1240mm

MUJICA's maximum substrate width, previously 600mm, has been extended to 1240 mm in consideration of the standard substrate width in the gravure printing industry for flexible packaging. The machine size is L7650xD2750xH1950mm and consists of an unwinding section (maximum substrate diameter 600mm), a washing section, a drying section, and a winding section. Its target is OPP and PET films printed with oil-based gravure ink, and the cleaning processing speed is 50m/min by way of ultrasonic cleaning and brushing using a plant-derived cleaning liquid.

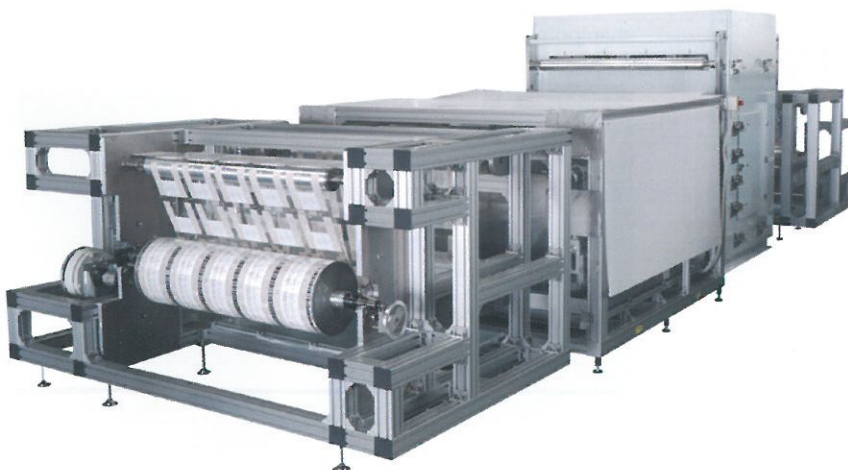
Rolled samples of OPP transparent film after deinking with a width of

600mm, recycled pellets, and molding samples were exhibited at the booth.

### Autonomous driving avoiding people and obstacles

While leading printing press manufacturers in Europe and Japan have proposed methods for replacing plate cylinders, ink pans, doctor blades, etc. using a special cart as a measure to reduce the workload of operators, Orient Sogyo's C2-G2 does not require a magnetic guide and runs autonomously, avoiding people and obstacles. Based on OMRON Corporation's LD Series of Autonomous Mobile Robots (AMR), the C2-G2 is equipped with two arms that can carry a gravure cylinder, sensors, safety devices, and other equipment. According to Masaki Masuda, Executive Officer (Board Member) of Orient Sogyo, the company had been working on the concept for a year and a half but rushed to planning around February or March of last year, started its design and development work in April and it was finally completed just before the exhibition.

For example, how does one go about replacing all the plate cylinders on a six-color gravure printing press? The basis of that press consists of one AMR "H2-S2" stocker trolley (H stands for plate and S for stock) and two C2-G2s (C stands for cylinder and G for gravure press). One C2-G2 may be used, but two are needed because it takes three hours to charge the battery.



MUJICA