

# Flexo & Gravure ASIA

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- Fresh solvents always available
- High solvent recovery rate
- Automatic continuous filling
- Reliable low maintenance equipment
- Simple and safe operation
- Constructed acc. to latest EU directives
- High levels of operational safety

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## Continuous and automatic distillation

*Inhouse solvent recovery is not only environment-friendly but also economically interesting through short payback time*

For the inhouse recovery of solvents, a Germany-based flexo tradeshop installed an ASC-200 solvent recovery plant, including a tank system for continuous recovery of flexo polymer solvent. This installation was successfully used for approx. 15 years. Since then, the plate manufacturer has grown and in 2004 moved to larger premises. At present, only flexo plates are produced. The new building contains two *Flint Group Printing Plates* washers for polymer plates based on solvents, a *nyloflex F IV* and a *nyloflex F II* washer, operating with the *nylosolv A* solvent. The proportion of solids in the washers does not exceed 5%, which implies that the distillation of these solvent works optimally. In the old rooms, a ASC-200 distillation plant was used for distillation. The system was equipped with a scraper system, still heated with thermal oil and recycled approx. 700 litres of solvent per day. At this time, the washers were linked to 2000 litre tanks that provided the necessary buffer capacity for the solvents.

Investment in a modern solvent-recycling plant was planned as part of the move. An estimate showed that the new distillation plant had to process approx. 500 litres of *nylosolv A*. Due to the good experience with the old *OFRU* system, it was decided to purchase the smaller

model ASC-150, which was state-of-the-art.

Since 1998, *OFRU Recycling* has built the ASC models with integrated steam heating, which have a design test certificate, are TÜV approved and ATEX-compatible. The systems only require electricity and all parts are integrated into the device and no external oil heaters, pumps or steam generators are needed. The complete solvent charge is heated within a short time with steam at up to 10 bar. This saves time when the plant is heated up and has a positive impact on the distillation performance per hour.



**View of the inside of a distillation vessel.**

drained from the middle in a fully automated process.

In a first step, a 2000 litre tank, which is automatically supplied by the two washers, is filled with used solvent. The distillation plant continually works around the clock in an automated operation and continuously sucks the used solvent into the distillation vessel. The inspection glass in the vessel allows adequate observation of the filling process and the distillation. The system is set up so that for 23 hours it continuously fills and distils and subsequently switches to sump distillation. During this time, approx. 800 litres *nylosolv* are recycled, approx. 40-50 l/hour during peak time. During the sump distillation phase, the mixture of solvent and polymer in the vessel is concentrated to form a honey-like mixture. The duration of the process is vari-



**Draining slide for automated draining.**

Furthermore, exchange of thermal oil is no longer required, heating elements cannot cake up and the distillation vessel stays operational longer without possible corrosion due to humid thermal oil.

These advantages were the focus of the tradeshop's investigation. A further advantage is a completely new scraper system that is used on the inside of the conical distillation vessel. It completely cleans the inner wall of the vessel of polymer residues that have a honey-like consistency. The scrapers are firmly attached to the wall and never need to be re-tightened. The contact pressure always remains constant and effective, even after wear. The liquid polymers are therefore optimally removed and sink to the conical bottom of the vessel during distillation, where they can be

able and can be adjusted. Thereafter, the draining slide at the bottom of the vessel automatically opens and the complete residue falls into a 200 litre residue barrel. After automated closing of the drainage slide, the software restarts the continuous 24-hour operation. The regenerated solvent is collected in a second solvent tank that continuously supplies the washers.

»This plant is already amortised. We could no longer imagine life in our company without the ASC-150«, said the Managing Director of the tradeshop. »Every month we save approx. EUR 12,000 in disposal costs.« If one adds the purchasing and the installation costs, payback time for this plant was less than six months – a profitable investment.

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**Recycling plant ASC-150.**

