

# ESA – a reliable technology not just for gravure printing

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*For many years, Enulec of Germany has specialized in the production of electrostatic print assist systems (ESA) for gravure printing applications. However, package printing, with its extensive use of widely differing film substrates, is still a particular challenge for the reliable application of ESA systems.*

Particularly in Asian markets, people still think that the use of electrostatic charge equalizing ESA systems is exclusively limited to substrates like paper and cardboard and that it is not suitable for film

a virtually maintenance-free, air assisted charging bar. It also offers a reduced gap between charging bar and impression roller and sufficient electrostatic assist even at low speeds. Another feature of Enu-

ped the ESA Roto-Film Pro system for such scenarios in order to automatically generate balanced web charging. Featuring the “Dynamically Balanced Charging” function, Roto-Film Pro also improves the balancing of charge on the substrate when the optional ESA systems on gravure presses are switched on. According to Enulec, customer feedback has already confirmed the ability of ESA Roto-Film and ESA Roto-Film Pro to significantly increase print production reliability.

In addition, ESA Roto-Film Pro offers a zero-capacitance high voltage generator and higher-frequency voltage superposition to counteract the effect of charge build-up. This ensures constant ESA performance even under difficult printing conditions and with different film substrates. According to Enulec, zero-capacitance high voltage generation on the impression roller achieves very good print results and considerably reduces wastage and set-up times on a gravure press. The technology completely breaks up undesirable electric bilayers and eliminates disruptive static charges. This improves the reliability of printing on differing film substrates by preventing the uncontrolled discharge of high trapped charges. Unlike other ESA systems, this one “neutralises” electrostatic charges and reduces charge present in the substrate web.



*The Enulec Static Inline Control system allows static charge to be monitored and documented during printing and converting*

substrates. This is probably due to the fact that running film webs generate static charge through movement and that the use of ESA would further increase such charging. In response, Enulec has developed a special ESA system that reduces the charging of the film substrate under strictly controlled electrostatic conditions. This is particularly important since some users require values of less than 0.3 KV on OPP.

## ESA for the packaging market

The Enulec ESA RotoFilm satisfies the specific requirements of the packaging printing market. The main feature of the top-loading system is

lec ESA systems is “Balanced Charging”. This patented process balances the charges on the impression rollers in gravure presses, which in turn significantly reduces the charging of the films. However, the use of this system also increases reliability when printing paper and cardboard substrates, and several European gravure press manufacturers have confirmed its effectiveness. Not every job requires the use of ESA systems on every press unit to achieve an optimum balance of charge. If jobs are printed with fewer colours than there are press units, the systems that are not in use can be switched off and prepared for the next job. Enulec has devel-

## Benefits of Enulec ESA systems

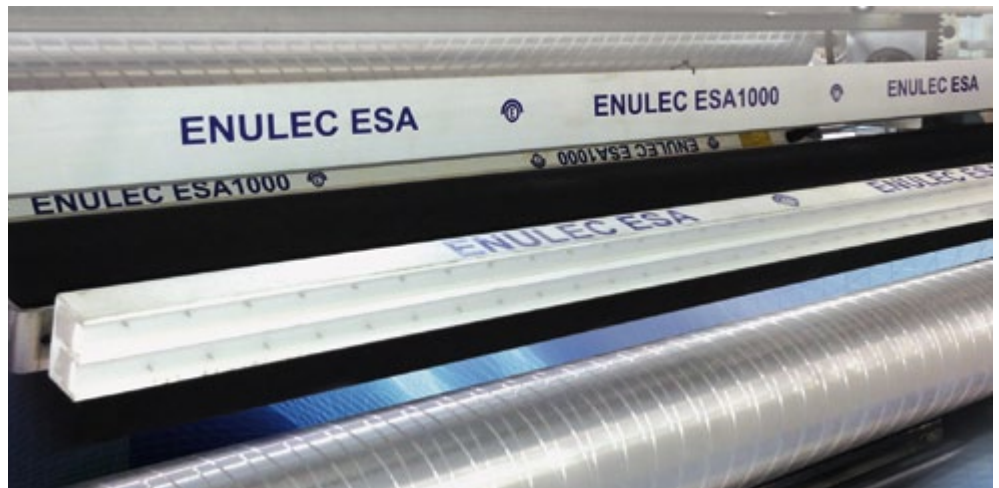
Apart from zero-capacitance “Dynamically Balanced Charging” for the balancing of impression roller charging on gravure presses, the benefits of Enulec ESA systems include low ESA voltage and a traffic light system for monitoring performance. Moreover, Enulec and a number of European gravure press manufacturers believe that the air-assisted charging bar and the ability to charge directly make Enulec’s ESA systems one of the most reliable of its kind.

## Measurement of static charges

The ability of Enulec ESA systems to efficiently reduce static charges can be demonstrated by using the Static Inline Control system to mea-

Source: Enulec

sure charge continuously. As an add-on to the ESA Roto-Film, it allows static charge to be monitored and documented during printing and converting. This technology is used by major packaging manufacturers and leading gravure press manufacturers. Positioned before and after the press units and also fitted to laminators and slitters/rewinders, it detects unwanted charge. The system measures the static charge of the substrate and triggers an alarm if a predefined warning level is exceeded. This system allows the state and progress of static charge on the substrate to be documented. The charges usually applied to film substrates by ESA systems cannot be fully or even partially removed by the discharging bars. This is due to the fact that the build-up of electrostatic charge during passage through the press units is so great that under certain



Source: Enulec

*The main feature of the top-loading system is a virtually maintenance-free, air-assisted charging bar*

field of flexible packaging revealed a demand for greater reliability when running ESA systems, particularly when using solvent-based printing inks. This demand has been met by integrating Enulec products into the products of the world's leading manufacturers of gravure presses, laminators and slitter/rewinders. As a result, all the parameters of the ESA system are monitored and evaluated by the press's software and it forms an integral element of the gravure press. ESA performance is automatically adjusted by means of tachometric compensation to press speed to ensure maximum reliability by preventing overcharging of the impression rollers and operating errors.

#### Heading for global growth

In the last years, Enulec achieved record sales for its discharging and monitoring devices for printing and converting applications. Christoph Dettke, owner and managing director since 2011 comments on the company's strategic direction: "In

spite of our obvious success, we are not only aiming to strengthen our market presence but also for further expansion." Apart from the development of customer-specific products and solutions in the field of electrostatics, the continuous improvement of the service it provides international customers is a top priority for the company. Currently, there are over 14 service centres.

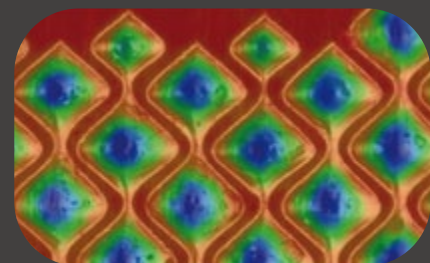
In the last years, the focus was on Asia and the Americas, where the network of service centres has been greatly expanded. In addition, there are 48 international distributors working for Enulec. Sustained high demand for systems and devices for the targeted application of electrostatic charges meant that Enulec's existing production capacity needed to be expanded. A new factory building at the company's headquarters at Trittau near Hamburg offers an additional 1,000 sqm. "A core concern is to maintain our already high quality levels and to further improve them. This is why we will continue to manufacture our products at our German headquarters", states Christoph Dettke.



Source: Enulec

| The Enulec company buildings

conditions there is only a very weak or even no ESA effect at the final units. This charge build-up with passage through the press cannot be removed by discharging bars. However, Enulec's ESA Roto-Film prevents this undesired phenomenon and ensures a potent ESA effect can be achieved even on the final press unit of a gravure press. An evaluation of customer needs in the



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