

Tesa-Strategie bis 2030:
Auf dem Weg in eine
nachhaltigere Zukunft

Flexo+Tief Druck

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mit Special

Extrusion & Converting



Den Weg für nachhaltigere
Produkte ebnen

tesa setzt auf nachhaltige Transformation durch Innovation

tesa.de

**Ressourcen schonen
Intelligenter Minimalismus
im Verpackungsdruck**

**Digital-/Flexodruck-Systeme
Hybridmaschinen sind im
Kommen – aus gutem Grund**

**Effizientes Farbmanagement
Stimmige Zusammenarbeit
der Software-Programme**

**Flexodruck
SOMAs Neuausrichtung
trägt Früchte**

**Rasterwalzen
Lasertechnologie garantiert
sicheren Reinigungsprozess**

**Kurzer Fertigungs-Workflow
Laserdirektgravur von
Druck- und Prägeformen**

DFTA 

Offizielles Organ der DFTA
Flexodruck Fachverband e.V.

ERA

Offizieller Medienpartner
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Association

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Laser technology guarantees a safe cleaning process

Ansgar Wessendorf

Whether precisely transferring defined quantities of ink to micro-fine anilox dots on a flexo printing plate or accurately applying a homogeneous coating layer - the reliable functionality of anilox rollers is an essential prerequisite for consistent performance on modern, highly productive printing presses.

The anilox roller is an expensive high-end tool and therefore requires regular care and cleaning in order to maintain its performance. Immediately after use, a cleaning result must be achieved that restores the speedy and unrestricted operational readiness of the anilox rollers. This requires a standardised, efficient, automated and environmentally friendly cleaning process that is seamlessly integrated into the production process. To fulfil these high requirements, German companies Ulmex and Zecher have developed a software tool offering two cleaning

stages. This enables laser cleaning at the touch of a button and thus significantly automates the process.

The key factors for successful cleaning

“Laser cleaning is based on the idea that a focussed laser pulse with high intensity hits the surface of the anilox roller, where the energy of the laser beam is absorbed”, explains physics engineer Sven Krause, who is in charge of product development at leading anilox roller manufacturer Zecher. If the correct system

parameters are selected, a so-called “cold” vaporisation of dirt layers and particles takes place. Therefore, the laser process is a gentle and sustainable cleaning method, provided that parameters such as pulse frequency, scanning width of the laser beam and feed and rotation speed of the laser are correctly set and harmonised.

Versatility and potential sources of error

“The great variability enables precise adjustments to the cleaning agent used and dirt particles to be cleaned, but also increases the potential for errors”, explains Michele Lunghi, Account Manager at Ulmex, a German manufacturer of laser cleaning systems

„Ulmex and Zecher have developed a software tool that enables laser cleaning at the touch of a button.“

that serves customers in the DACH region, which includes Germany, Austria and Switzerland. “If the parameters are not optimally set or harmonised with each other, this can lead to changes in the anilox roller properties, which in turn can have a negative impact on the print results. Changes in the ceramic surface, loss of volume of the cells or even melting processes, which may result in the destruction of the anilox roller, may occur.

Not all faults and their causes are immediately obvious. In addition, determining the correct setting parameters requires time-consuming and cost-intensive test series”, continues Michele Lunghi.

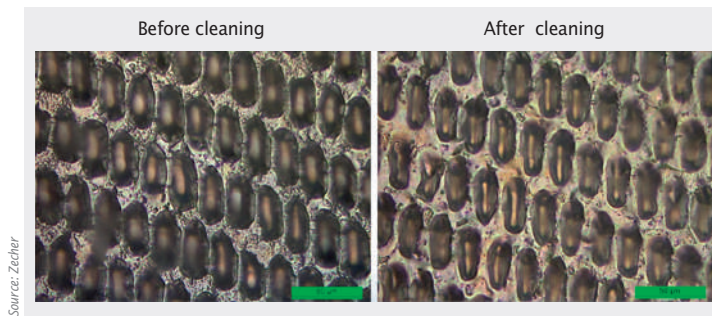
Cleaning at the touch of a button: a choice of two programmes

Zecher and Ulmex have enjoyed a close sales and technical partnership for many years and are world leaders in anilox roller technology. Both companies specialise in the entire anilox roller

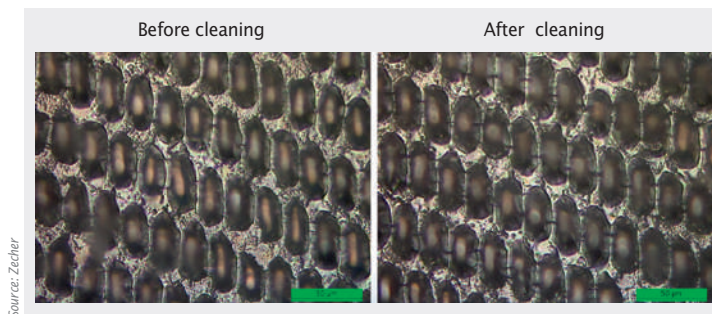
The Evolux laser systems from Ulmex enable the efficient cleaning of all types of anilox rollers, regardless of whether they are solid or sleeve rollers



Source: Zecher



The laser cleaning of a ceramic anilox roller (linearity: 460 L/cm; cell shape: SteppedHex) is melted after laser cleaning (right)



The microscope image on the right shows a perfectly laser-cleaned ceramic anilox roller (linearity: 460 L/cm; cell shape: SteppedHex), which is ready to be used again for printing

process, from production to cleaning and quality control. “To meet this challenge, we have developed a new software tool that ensures gentle and thorough laser cleaning of Zecher ceramic anilox rollers on Ulmex Evolux laser cleaning systems”, says Sven Krause. “We worked intensively on this unique solution for six months before officially launching it on the market in June of 2023.”

“There are a total of six to seven main variables that essentially influence the cleaning result of the ceramic anilox rollers. We

have adapted these precisely to the requirements of Zecher anilox rollers”, says Sven Krause. The result is a software tool with two programmes that covers the entire cleaning spectrum for anilox rollers in package printing plants. In future, this tool will be included as standard in all Evolux laser cleaning systems.

The first cleaning programme has been optimised for all Zecher ceramic anilox rollers with a linear capacity of less than or equal to 300 L/cm. The second programme variant covers all Zecher anilox rollers with a linearity of

A wide range of products and services for the printing industry

Ulmex is an internationally operating company from Germany, specialising in the supply of technical components, consumables, equipment, spare parts and services for the package printing industry, particularly in the areas of flexible packaging produced by flexo and gravure printing.

The comprehensive range of products and services is based on a thorough market analysis, which enables Ulmex to include carefully selected products from international manufacturers in its range. They must fulfil high quality standards and meet the diverse requirements of customers.

However, the company not only relies on tried-and-tested solutions from other manufacturers, but also develops its own products. One

example are customised doctor blade chamber seals for flexo printing, which are manufactured in-house. The efficient production process enables the seals to be delivered to the customer within 24 hours of receipt of the order.

More than two decades of experience in printing processes and the expertise of its employees in the field of laser technology formed the basis for the development of Evolux – a solution for the laser cleaning of anilox rollers. In addition, Ulmex also offers services that include specialised consulting and technical support.

The company also provides a 24/7 laser cleaning service for anilox rollers on site. This service is offered throughout Europe by a fleet of service vehicles equipped with Evolux technology.

Comparison protocol:

Date: 03/04/2023 11:12:05
 Operator: Krause, Sven
 Plant:

Before cleaning:

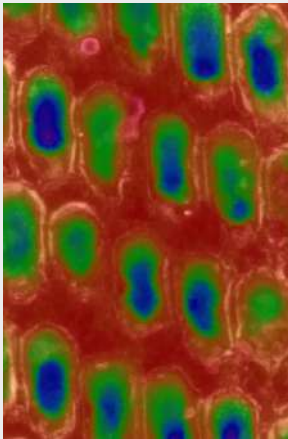
Objective: 20x
 Screen ruling: 462.1 l/cm
 Transfer volume: 3.69 cm³/m²
 Profile depth: 14.4 µm

Nominal data:

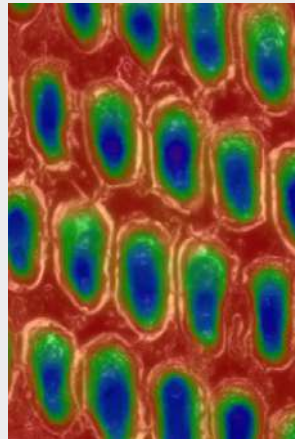
Cylinder no.:
 Manufacturer: Zecher GmbH
 Screen ruling: 460 L/cm
 Transfer volume: 5.0 cm³/m²

After cleaning:

Objective: 20x
 Screen ruling: 456.9 l/cm
 Transfer volume: 4.99 cm³/m²
 Profile depth: 16.9 µm



Commentary:



Transfer volume gain: 35.2%

Source: Zecher

The protocol documents the successful laser cleaning of an anilox roller

more than 300 L/cm. “All the user has to do is knowing the size of the roller to be cleaned and press the corresponding parameter button on the touchscreen. The fully automatic cleaning process with the laser then starts. The operator’s only task is to insert and remove the anilox roller from the laser system. Time-consuming test series are no longer nec-

essary”, explains Michael Lunghi.

Sven Krause adds: “The cleaning parameters cannot be changed by the user, as such adjustment is an extremely complex process. Unsystematic modification of individual parameters by the operator would most likely have a negative impact on the entire system and, as already described, could lead to a loss of quality in the anilox rollers”. The two cleaning programmes are perfectly adequate for removing even stubborn dirt particles and difficult-to-clean media such as 2K white from the anilox rollers gently and without leaving any residue. In these cases, however, the laser often has to pass over the ceramic surface several times.

More than just cleaning

The Ulmex Evolux laser systems enable the efficient cleaning of all types of anilox rollers, regardless of whether they are solid or sleeve rollers. This technology significantly reduces the time required for cleaning and removes residues gently and permanently, without the use of chemical detergents. The Evolux range includes the flagship Plus model, the basic Compact model and the mobile Smart

version. All models are 4.0-ready certified.

In addition to cleaning, Evolux also enables continuous monitoring of the entire anilox roller inventory for timely maintenance interventions. The integrated 3D

„The Evolux laser systems from Ulmex are characterised by their unique technology and versatility.“

microscope and proprietary software reduce reconditioning costs and ensure optimum roller performance.

All Evolux models are characterised by their unique technology and versatility, which ensures maximum reliability even with intensive use. These models were developed by Ulmex to clean the ceramics of the anilox rollers while maintaining their quality. Ulmex benefits from its close co-operation with the anilox roller manufacturer Zecher. Michele Lunghi summarises: “The jointly developed new software tool with the two cleaning programmes is a good example of this collaboration. As an integral part of our Ecolux systems, the tool was developed for the standardised, efficient, automated and residue-free laser cleaning of Zecher ceramic anilox rollers. In short, laser cleaning at the touch of a button”. ■

Zecher celebrates its 75th anniversary

In 2023, the renowned company Zecher is celebrating an impressive anniversary – 75 years of successful company history. Founded back in 1948 by Kurt Zecher in Paderborn, Germany, Zecher GmbH paved its way over the following decades to become a globally active anilox roller manufacturer in over 60 countries. Its pioneering spirit manifested itself in the production of the world’s first regularly engraved Zecher anilox roller, a milestone that laid the foundation for its continued success. Continuous innovations, including 45° anilox engraving for flexographic printing, the ground-breaking laser-engraved ceramic anilox roller and the pioneering SteppedHex engraving, have also enabled Zecher to establish itself internationally. Zecher’s SteppedHex engraving has proven to be a pioneering alternative to traditional hexagonal engraving.

The engraving not only enables a higher linearity without significant loss of volume, but also creates optimum printing gap conditions thanks to the specially staggered engraving. It also ensures improved emptying and cleaning of the anilox roller. Another innovative product is the Zecher app, which enables users to take a step towards predictive maintenance of their roller inventory. With the help of a colour traffic light (green, yellow, red), users can see at a glance which anilox roller requires which action after entering inspection results. However, this function is not limited to anilox rollers from Zecher, but is also suitable for products from other manufacturers. This allows customers to keep an eye on the performance of their anilox rollers and sleeves and take targeted measures for reconditioning or reordering in order to minimise downtime on the printing press.