

Press release

Coding & marking in extrusion: 5 challenges and their solutions in a nutshell

Tuttlingen (Germany) / December 05, 2023 – The production of extruded products involves many challenges. Key issues include the right selection and preparation of materials, controlling extrusion temperature and speed, the design of high-quality moulds and tools as well as ongoing quality control. Energy efficiency and the optimisation of operating costs are also decisive factors that need to be considered at all times.

In this demanding production process, coding & marking the extruded products is also extremely important, as it contributes to product identification, traceability and quality control. Specific requirements can vary depending on the industry and the individual application. Typical coding & marking may include product identification information, manufacturer information, batch or serial numbers, production dates, material details, technical specifications, bar/2D codes or safety instructions for handling and use.

To ensure smooth, efficient operation, it is imperative to select a coding & marking system that meets the specific extrusion requirements.

Here are the 5 biggest challenges and LEIBINGER's advanced solutions:

1. Problem-free operation – 24/7

Extrusion is usually carried out 24/7. Any downtime is expensive and should be avoided at all costs. To ensure high-quality printing, the coding & marking technology has to perform reliably and continuously.

LEIBINGER's solution: IQJET technology

Maximum reliability and fault prevention are exactly what LEIBINGER's latest innovation – the IQJET – promises and delivers. Its cutting-edge automatic nozzle sealing technology, which is unique on the market, guarantees just that. It seals the ink circuit 100% airtight during printing pauses. This prevents the nozzle from clogging or the ink from drying out – a typical problem with competitive conventional CIJ products. When the IQJET is switched on, it starts up again immediately – eliminating the need for cleaning, system preparation and expensive downtime. Maximum availability and uninterrupted processes are virtually guaranteed.

The IQJET also continuously regulates the ink temperature and viscosity,

ensuring consistently high print quality at all times. The IQJET's XXL ink cartridges are used down to the last drop and cartridges can be changed seamlessly during operation – without any printing interruptions. With a print speed of up to 413m/min, the IQJET can effortlessly manage the extrusion speeds.

2. Production changeovers – both flexible and user-friendly

A seamless transition between different production runs in extrusion is also extremely important. The coding & marking system needs to facilitate and accelerate the changeover from one product to another. As such, the flexibility and user-friendliness of the coding & marking are decisive. A wide range of coding & marking options also plays a very important role when it comes to extrusion.

LEIBINGER's solution: A multitude of print functions and content – combined with easy, fast operation

The IQJET ensures an immediate start-up and a consistently high-quality print image, even after long printing pauses – without the need for cleaning routines or complicated adjustments.

The system can be operated effortlessly via a state-of-the-art HMI with a 10-inch touch display and intuitive drag & drop operation (as with a smart device). The print jobs can be changed over in no time at all.

The IQJET prints up to 8 lines and with a print height ranging from 1.5 mm to 15.0 mm. It offers a maximum range of print content – including graphics, fixed text, variable text, all commonly used barcodes or 2D codes and much more.

3. High-precision marking and coding with maximum adhesion

Depending on the material and extrusion process, the extruded products may still be at a high temperature when they leave the machine. The exact temperature can vary depending on the application and the specific requirements of the subsequent production process. In some cases, it may be necessary to cool or temper the extruded products once they have left the extrusion line in order to achieve the desired properties with absolute reliability.

When applying the markings, it is especially important that they adhere well to the material – precisely and with flawless legibility – and that the extruded product can be processed immediately after coding.

LEIBINGER's solution: From the ink expert

LEIBINGER offers a full range of inks that are ideal for coding & marking different materials. The inks are quick-drying and guarantee exceptional adhesion. The selection includes MEK-free, highly pigmented variants as well as specialised inks. Outstanding legibility is guaranteed with LEIBINGER inks – whether on light or dark-coloured substrates. The inks are developed and produced in-house at LEIBINGER, ensuring both high quality and availability.

4. Quick integration and no maintenance required

The extrusion process often calls for precise settings and adjustments to ensure that the extruded product meets the desired specifications and quality standards. When interruptions arise, whether due to maintenance, material changes or other reasons, these settings typically need to be checked and adjusted before production can resume. This takes time and resources and can prolong production downtime. To minimise interruptions, it is essential to make the process as efficient as possible.

LEIBINGER's solution: 'Plug & Print' and 5 years of maintenance-free printing operation

When it comes to integration into production operations, LEIBINGER is making a strong statement with its groundbreaking IQJET. The integration works via 'Plug & Print'. The printer is equipped with numerous interfaces, including OPC UA and an integrated PLC, so that it can be quickly and easily integrated into any production line.

The IQJET is also maintenance-free for the first 5 years. In other words: no maintenance costs and no maintenance-related interruptions. Just non-stop perfect printing.

5. Energy efficiency and optimised operating costs

In extrusion, energy costs due to material heating are far from negligible, and optimising operating costs is of key importance.

LEIBINGER's solution: The lowest operating costs on the market and optimised power consumption

The new generation of IQJET coding & marking technology prioritises significant savings in operating costs. For example, the IQJET uses 50% less solvent than competitive printers. This simple calculation illustrates the savings: The IQJET consumes 2.7 ml of solvent per hour. Competitive printers use as much as 6 to 10 ml per hour. Calculated on a three-shift operation with

an average of 6,000 total hours per year, up to 43,800 ml of solvent can be saved annually. Easy on both the bottom line and the environment!

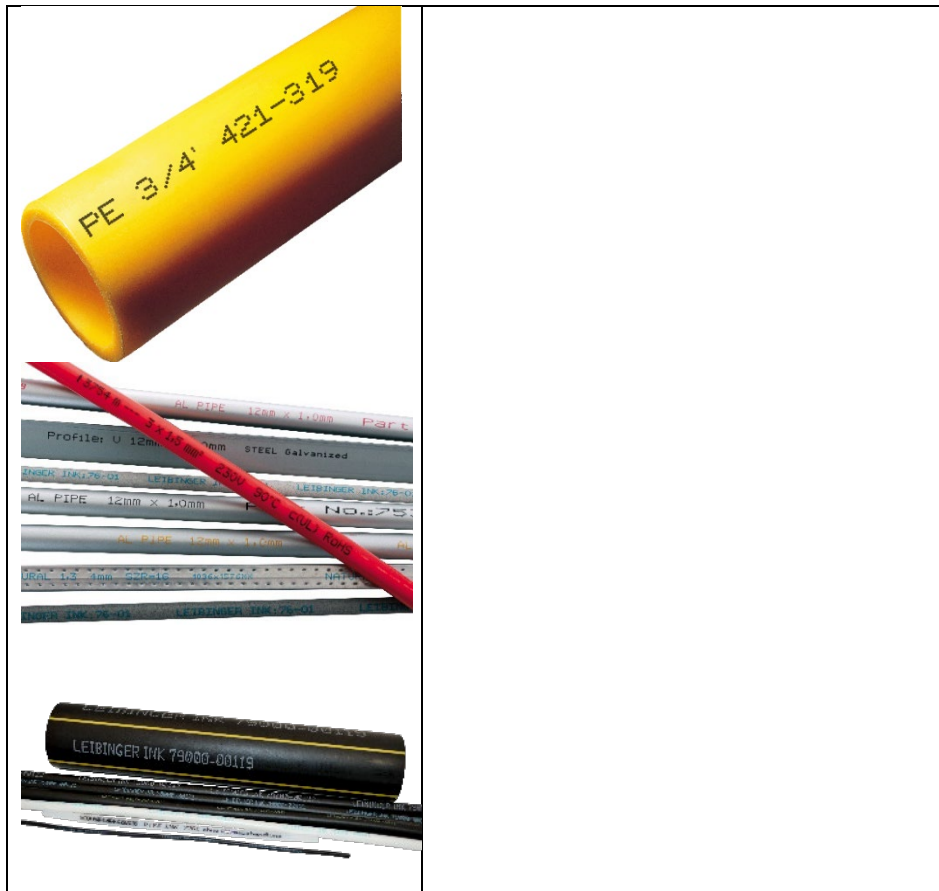
In terms of power consumption, the IQJET is a real trailblazer and the most energy-efficient printer on the market – consuming only 36 watts.

Conclusion

Efficient coding & marking is essential in extrusion. And the right technology – such as the LEIBINGER IQJET – is the solution. This cutting-edge coding & marking system delivers maximum support to customers by increasing productivity and quality assurance, and by optimising total cost of ownership (TCO).

Image captions:

	<p>The LEIBINGER IQJET marks cables during the extrusion process.</p> <p>Source: Paul Leibinger GmbH & Co. KG</p>
	<p>“With the LEIBINGER printers, we are now able to mark our products faster than ever and can implement product changes even more quickly.”</p> <p>Klemens Isele Managing Director of Binder + Wöhrle GmbH & Co. KG, Germany</p> <p>Source: Paul Leibinger GmbH & Co. KG</p>
	<p>Examples of marking imprints on extrusion products.</p> <p>Source: Paul Leibinger GmbH & Co. KG</p>

**Contact**

Paul Leibinger GmbH & Co. KG
Aljona Barberio (Marketing)
Daimlerstraße 14
78532 Tuttlingen
Tel.: +49(0)7461 / 9286-236
Fax: +49(0) 7461 / 9286-199
E-Mail: abarberio@leibinger-group.com
Website: www.leibinger-group.com

If published, please send a file copy to the Marketing Department.

About Paul Leibinger GmbH & Co. KG (LEIBINGER)

LEIBINGER is a globally operating specialist in coding & marking systems with headquarters in Tuttlingen, Baden-Württemberg (Germany). The third-generation family-run company, founded in 1948, develops and produces industrial inkjet printers as well as inks for various applications – with a workforce of close to 300. Innovative technologies and an exceptionally high standard of quality are what distinguish LEIBINGER's advanced coding & marking solutions. As the inventor of a disruptive nozzle sealing technology LEIBINGER is transforming the industry's experience working with Continuous Ink Jet (CIJ), leading to greater productivity in the manufacturing of food and industrial products – with tens of thousands of successful installations worldwide. A global network with some 150 distribution partners and subsidiaries in the US and China ensures that LEIBINGER is ideally positioned to maintain close relationships with its many customers worldwide.