

REA JET

CODING AND MARKING
SOLUTIONS FOR INDUSTRY –
MADE IN GERMANY

WHITEPAPER

Digital direct printing on secondary packaging

cost-efficient – flexible – sustainable



Secondary packaging of today: Digital direct printing for cost-efficient, flexible and sustainable coding and marking

Secondary packaging usually refers to cardboard boxes that hold a certain number of products. They are used to protect, transport and store the products. That means they have to be sturdy and stackable. They are also frequently designed as a sales unit or display. In that case, their design is meant to attract the attention of customers and advertise the product.

Primarily, however, secondary packaging often has to communicate a lot of important information reliably: the product designation and article number, the EAN code and storage instructions — perhaps even the address of the customer or other barcodes or matrix codes with important information, for example, as a logistics aid.

This information can be placed on secondary packaging in various ways: by means of

- Preprinted boxes
- Labels
- Digital direct printing

The trend in industry is moving toward greater product variety with individually smaller quantities.

Digital direct printing – the sustainable solution

Digital direct printing means contact-free and flexible coding and marking. Thanks to their compact design, the printers are easy to [integrate into the production line](#) even in limited spaces. In addition, the systems are extremely [cost-efficient](#) to purchase and operate.

While in other printing processes (such as gravure printing and flexographic printing) the printing tools need to be cleaned regularly and will wear out after a certain usage time, digital direct printing features very [little need for cleaning](#), not to mention [availability](#) that is ensured to last for years without wear.

Coding and marking systems with large dimensions produce a [large and simultaneously high-resolution print image](#) with all relevant information. Even barcodes and 2D codes are printed reliably and in their entirety by a single print head. The digital printing process also facilitates comprehensive [control of the quality and machine readability](#) of the codes. The print area can be increased by the use of multiple, cascaded print heads.

For smaller production batches, the use of preprinted boxes increases the manufacturing costs per piece, because these require not only additional set-up time, but also appropriate planning, logistics and warehouse space so that there is always a sufficient amount of packaging material available for the current production.

For the application of batch-relevant information such as date of manufacture, batch numbers and best-before date, an additional system must also be installed.

If the coding and marking is done with labels, then these must also be available in the right size, design and required quantity. They must be printed in advance and be applied reliably.

If digital direct printing is used at the end of the production line, all of the static and variable information can be applied to the secondary packaging in one work step and be undetachable. This whitepaper provides information about further benefits of digital direct printing for coding and marking secondary packaging as well as what is important when investing in a new system.

Digital printing systems are typically [low-maintenance](#) and require nothing more than new ink at regular intervals. This simplifies the management of materials compared to label printing or using preprinted boxes and removes the burden of the internal logistics and warehousing required for those. [Without retooling](#), you can switch between sorts and products during ongoing operation, which reduces machine downtime to a minimum.

In the case of state-of-the-art industrial printing systems, even empty ink tanks are replaced with full ones during ongoing operation. Furthermore, the ink containers are designed to have an extremely large production range, which further reduces their [operating costs](#) compared to other printing processes.



High-resolution REA coding and marking system of the GK series for box marking

Digital direct printing – the flexible solution

Mount the device at the belt and it's ready to go! State-of-the-art digital direct printing systems in industrial coding and marking are immediately ready for operation. They allow for the greatest possible freedom for **customizing the print contents** — from variable data (such as date, time, counter and shift code) to alphanumeric texts, barcodes, Data Matrix codes and logos. When deciding on a purchase, think ahead and make a point to choose a system with **flexible print head alignment**. Then, later on, you will not be limited to coding and marking on the side of the packaging and at various heights. You will be able to apply coding and marking from above as well.

Particularly in the case of machine-readable codes, for good print quality and edge definition of the print image, it is critically important to have **high horizontal resolution**. Digital printing systems operate **continuously** (in other words, without cycles) and enable considerably higher production speeds than, for example, labeling. You can keep a bottleneck from forming at the end of production with direct printing (as happens with

other coding and marking processes) due to speed limitations of the application by noting that the printing system can keep pace with a **high product speed**.

For globally active companies it is good to note that **foreign languages** can also be printed. In addition, the controller of the printing system has **advanced interfaces** to enable connection to a higher-level system. Then data relevant to printing is transmitted in real time from that to the printing system.

In a matter of seconds, therefore, print layouts that are already available in the system can be filled with real-time data, such as series or batch numbers and best-before dates. This type of connection enables **the immediate change between products or product variants** with the display of new contents and print layouts.

Titan controller – single operating concept for REA coding and marking systems



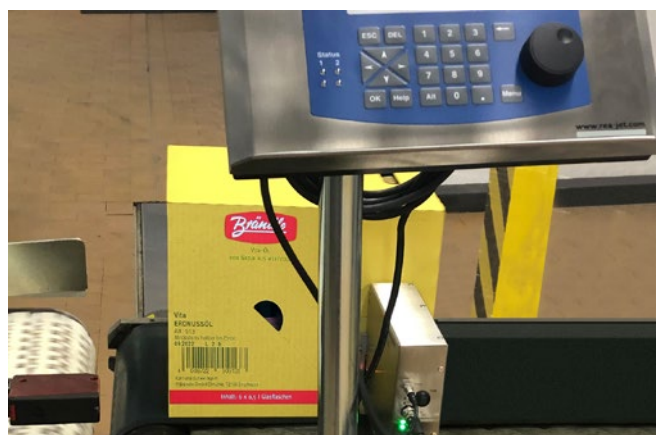
Digital direct printing – the networked solution

In the new working world, operators no longer have to stand right next to the machine. State-of-the-art printing systems have integrated web servers which enable them to be **operated remotely** by PC, smartphone, tablet or laptop. Here, it does not matter if the operator is only a few feet away or on the other side of the world. Gaining remote access using corresponding credentials makes work easier for the manufacturer's technicians during commissioning, application support or maintenance. Not having to travel to the customer's location also helps reduce the carbon footprint.

Our entire working world is constantly becoming more digitized and connected. When choosing coding and marking systems, therefore, you should note that they are integrated into the company's existing system and can communicate with it — in keeping with **Industry 4.0**. Furthermore, it is a considerable relief for the organization within the company and its development when the provider has a **wide-ranging assortment** of coding and marking solutions and thus can cover the company's diverse coding and marking needs even in the future. That decreases costs and expenses in the long-term. After all, if all coding and marking systems can be controlled by a **single operating platform**, that enables a comprehensive overview of the condition of all coding and marking devices in the plant.

This type of single operating concept also reduces the training effort, complexity in production and susceptibility to errors — and makes it easier to deploy personnel.

When printing machine-readable codes, it's all about the details. Certain codes may seem to be OK upon first glance but actually have defects impairing their legibility. Thus for quality control it is advisable to use a **code verification system** that can be integrated into the production process.



Marking secondary packaging with codes and product information

Digital direct printing – the cost-effective solution

State-of-the-art contact-free coding and marking systems for secondary packaging contribute above all to reducing costs — depending on the application and carrier material, by 30 to 35 percent. Overview of benefits:

- Only one printing system is required, which has a compact design that allows it to be integrated into production
- No expenses for a variety of consumables such as preprinted boxes and labels, or for their warehouse space and management

- No expensive downtime for changing products, label rolls or box layouts
- Economical consumption of ink, low maintenance expenses

Our recommendation for state-of-the-art, flexible and cost-effective coding and marking of your secondary packaging:

REA JET GK 2.0 – High-Resolution Inkjet Printers (Piezo)

The new generation of REA JET GK 2.0 high-resolution inkjet printers uses variable print data to print freely combinable texts, logos and graphics. A horizontal resolution of up to 1200 dpi provides for print results with pin-sharp edge definition — even at print heights of up to 100 mm. Thanks to their compact design, the devices are easy to integrate into production. In addition, they are fully capable of Industry 4.0.



Flexible printing of boxes from the side and from above

Our matrix code verification systems

The REA VERIFIER verification systems are state-of-the-art devices for checking barcodes and 2D codes; they can be used in virtually any industry. Depending on the design, they check the coding and marking either lying/standing/from top to bottom or in-line with the fully integrable variant.



VeriCube Code Verification System for 1D and 2D codes from REA VERIFIER

You can find more information here:

- [Website](#)
- [Video](#)
- [Brochure](#)

You can find more information here:

- [Website](#)
- [Video](#)

The REA JET TITAN Platform

One for all: the state-of-the-art, cross-technology operating concept for all REA JET ink and laser coding and marking systems



Glove operation

Push-turn jog-dial knob for operation with gloves directly on the line



Touchscreen operation

Touchscreen for operation directly on the line



Wi-Fi browser operation

Browser operation using mobile devices (PC, tablet, smartphone) via Wi-Fi / WebGUI



PC operation

Remote control using a PC workstation or production control console over the network



Remote maintenance

Remote maintenance and operation are possible via VNC server



Keyboard input

For regularly recurring, extensive text entry on the line, use of international USB keyboards is possible



The new generation of REA JET GK 2.0 high-resolution inkjet printers

You can find more information here:

- [Website](#)
- [Video](#)
- [Brochure](#)

Interested in systems from REA?
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