Whitepaper

Weber®
LABELING & CODING SOLUTIONS

How to choose the right inkjet printer for demanding applications

Content

1. Introduction

Requirements for industrial marking and coding increase from year to year, due to new laws and business needs. Because of their advantages in speed, efficiency and quality, professional inkjet printers have become indispensable in many factories.

However, printing conditions in different industries can be quite challenging, from dusty environments to 24/7 production. For this reason, many 'specialized solutions' are available on the market. Weber Marking Systems takes a different approach: Our Markprint product range covers a variety of requirements in cost-effective standard solutions, making it one of the most powerful and versatile inkjet printer series on the global market.

Meeting different requirements

One thing is certain: There is no 'one fits all' inkjet printer. Every system has certain benefits or downsides depending on the application. Thus, it is important to consider all factors when looking for the perfect solution. This should not only include the facility's environment itself but also specific industry regulations that need to be applied (e.g. in the food industry), as well as the planned coding process within the production or packaging line.

There are three main criteria for selecting the right inkjet printer:

1. Print volume:
How much do you print? How much ink is consumed?

2. Production time:
Is it a continuous production? Are there frequent downtimes?

3. Printing environment:
Will the inkjet printer need to withstand dust, high humidity or wet cleaning?

2. *High ink consumption and 24/7 production*

One single ink cartridge can only produce a limited number of prints depending on the content, print resolution and ink type. From experience, high ink consumption and nonstop production are usually two of the biggest concerns for manufacturing companies.

Central ink supply systems and inkjet printheads with nonstop-printing-features offer just the right solutions.

Central ink supply.

2.1 Increasing productivity with central ink supply

Markoprint ZTV HP is a unique, gravitation-independent ink supply system for quickly drying or solvent-based HP inks.

It monitors and refills ink cartridges automatically in order to provide high availability. The bulk system holds up ten times more ink than a single cartridge, saving both time and money by lowering the amount of cartridge changes needed (and production stops that come with it).

Cost savings of up to 75 % in ink consumption are possible! Since Markoprint ZTV HP is maintenance-free, the system scores particularly well in direct comparison to continuous inkjet (CIJ) printers:

- enormous cost reduction
- higher print resolution
- considerably less messy

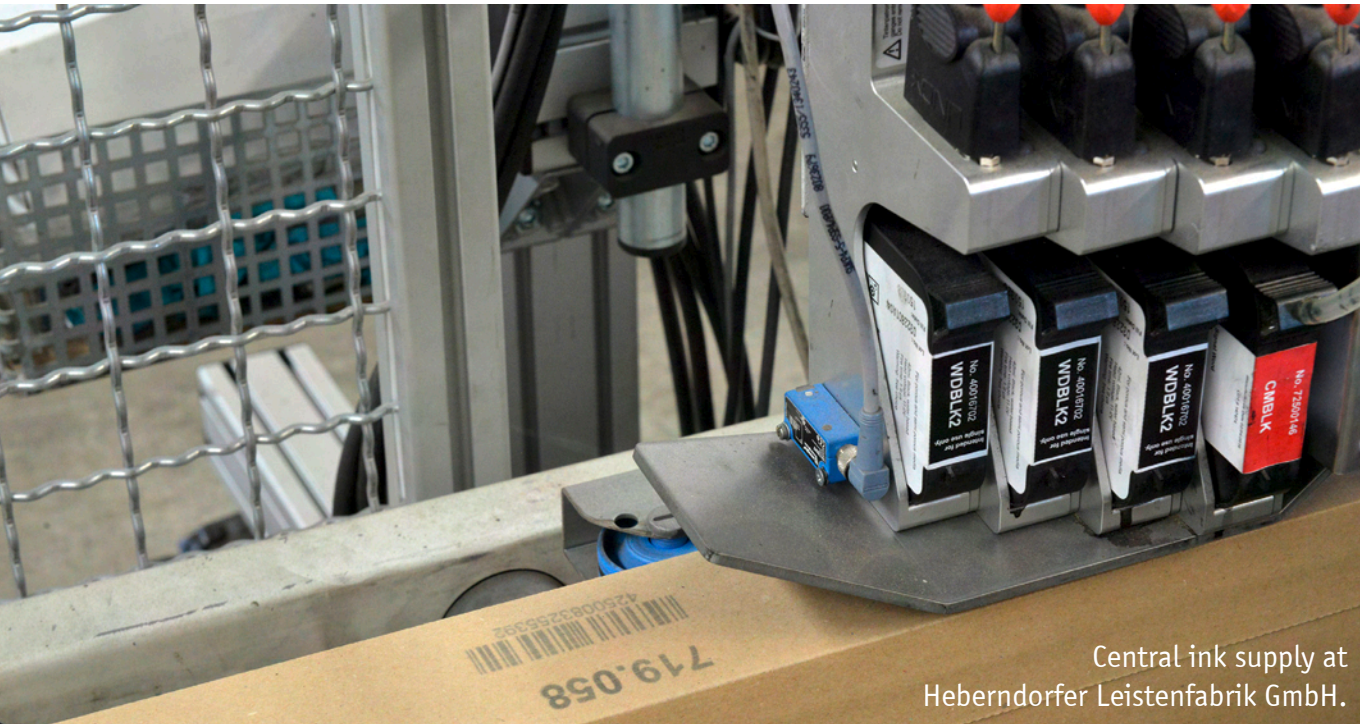
What limits the range of use is the durability of the ink tank, which is six months. If this period is exceeded, the ink properties may change in terms of adhesion and color.

Application example: Markoprint ZTV HP bulk system

One of our customers, a manufacturer of sectional strips, uses our central ink supply system in combination with a four-head, large character inkjet coder to mark their products and packaging in the most efficient way.

Interested in this application?

Watch video



Central ink supply at Heberndorfer Leistenfabrik GmbH.

2.2 Reducing stops due to cartridge replacements or cleaning

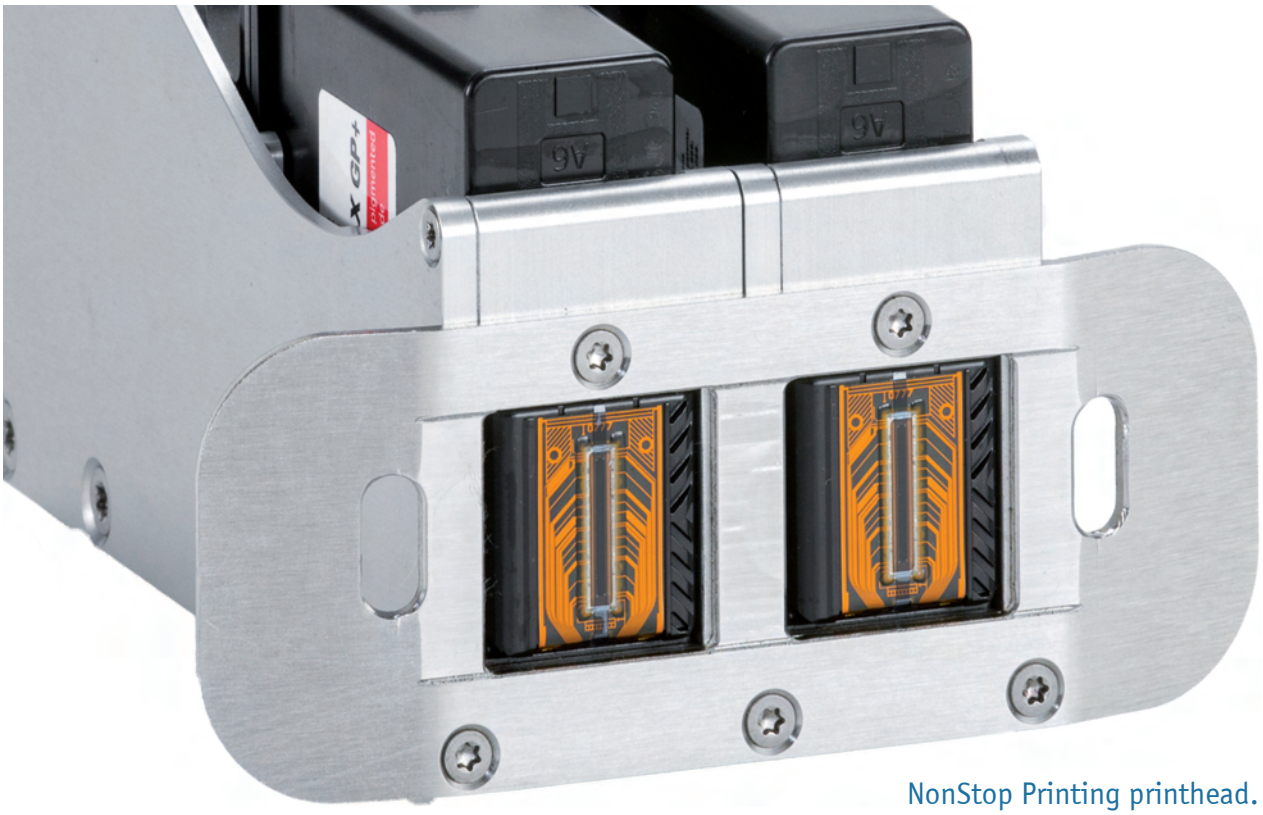
Uninterrupted coding is, of course, also interesting for applications with low or medium ink consumption. Our Markoprint NonStopPrinting printhead carries two alternately printing cartridges to enable continuous marking in running production. Each ink cartridge can be replaced, cleaned or maintained without having to pause the system, because the other one will meanwhile print on the same position.

An intelligent automatism prevents both cartridges from going empty at the same time: The first cartridge will always print two successive print jobs, taking turns with the second cartridge which will only print one.

This will prevent the ink in both cartridges from drying up unused. Whenever the cartridge with the higher print volumes is empty, a warning will appear while the other cartridge will automatically continue printing nonstop, until replacement is completed.

The new cartridge will now print the smaller volumes so that the „older“ cartridge needs to be replaced next. A smart workflow to increase productivity and efficiency.

An additional camera system can be used to monitor the print quality. As soon as print results start deteriorating when one of the cartridges is about to run dry, it can be deactivated while the other cartridge continues with all outstanding print jobs. This ensures trouble-free 24/7 production.



NonStop Printing printhead.

2.3 Installing interruption-free printing solutions

In some use cases with high ink volume, only reducing stops is not enough. If production must be running continuously, at high speed and without fail or interruption, a combination of technologies delivers just that: An inkjet printer that never needs to stop for refills!

Since our Markoprint ZTV HP bulk system is compatible with our Markoprint NonStopPrinting printhead, users can benefit from the advantages of both solutions at the same time:

While the bulk system delivers up to 1.2 liters of ink per cartridge, the NonStopPrinting printhead allows two cartridges to run alternately. To top it all off, this combined system solution is even more cost-effective than comparable products on the market.

3. Long printer downtimes and difficult-to-access systems

In the past, thermal inkjet (TIJ) printers have not always been the first choice for batch productions with frequent downtimes or interruptions. This was due to their so-called 'decap time' (or open time), which refers to the period of time that nozzles can be idle and uncovered before they dry out and fail to print reliably. The open time depends mainly on the type of ink. Once exceeded, it was necessary to replace the entire cartridge, which caused higher costs and waste of material.

Ultimate Twin printhead (closed).

Storing opened cartridges in special cart clips until the next use will help. However, it is not always possible to do so, especially with hard-to-reach areas and enclosed systems such as those often found in the pharmaceutical industry. Weber Marking Systems offers tried and tested standard solutions precisely for these cases.

Ultimate Twin printhead (opened).

3.1 Innovative features to prevent ink from drying out

Our Markoprint integra Ultimate system combines several intelligent features in order to extend open time by up to 800 % (depending on the type of ink). Even after being idle for several days, it will be ready to start printing again in an instant, without errors!

It is thanks to a patented closure system with internal cartridge cleaning that automatically closes and cleans the nozzle plate at each standstill. This means, the cartridge can remain in the system during longer breaks in production, including weekends.

The integra Ultimate printhead also increases the decap time of UV inks, which are used, for example, to print on very smooth surfaces. Since UV inks cure in seconds, they are not as runny as other inks. By closing and cleaning itself during stops, the printhead prevents UV light from affecting the ink during this time. Another advantage of the closure system is its protection against the ingress of dust and dirt particles that may clog the nozzles.

4. Printing in humid and dusty environments

Each production environment is unique. Conditions for marking systems are not always optimal. Dusty and dirty environments, such as those found in the heavy or wood industries, may clog electronic devices. Humid environments or wet-cleaned areas in the food industry are equally challenging. Markoprint inkjet systems are developed to ensure reliable printing even in the most demanding and difficult surroundings.

4.1 IP Codes for protection against particles and liquids

In wet-cleaned production environments, inkjet printers usually have to be covered waterproof or even have to be dismantled beforehand. This costs valuable time and money. Significant effort can be saved by paying attention to the device's IP Code. These properties are also interesting for factories with high dust levels.

The IP Code (also referred to as 'International Protection Marking') indicates the degree of protection that the housing and connectors provide against foreign particles and water. The first digit indicates the level of protection against solid objects. The second digit indicates the level of protection against ingress of liquids. Devices with IP Code 65 provide protection against dust and water jets.

Markoprint IP-JET HP is a compact thermal inkjet printer for humid or wet-cleaned production environments. With its robust housing and IP Code 65, it does not have to be dismantled when the environment is wet cleaned. The HP cartridge system prints texts, expiration dates, batch data and barcodes as well as logos with a height of up to 12.5 mm, at a speed of more than 180 m/min.

Integra One IP printhead.

Another inkjet printer with IP65 protection is our extremely compact Markoprint integra One IP which is specifically designed for easy system integration. Its integrated display allows users to change settings and edit variable fields directly on the system.

IP-JET HP printhead.

4.2 Self-cleaning systems for perfect printing results

Another inkjet solution with IP65 protection is our Markoprint integra Ultimate printhead. Additionally, it has a patented closure system and internal cartridge cleaning. It is therefore not only particularly suitable for demanding applications in the food and chemical industry, but also for the use in dusty production environments.

Dirt on the nozzle plates of thermal inkjet printers may lead to defective nozzles and unwanted printer lines as well as ink cartridge failures and unplanned production stops. Not with Markoprint integra Ultimate: The print head automatically closes the cartridge during every downtime, thus preventing dirt from settling on the nozzle plate.

With this function, the printhead stands out clearly from other coding solutions on the market and is one of our innovative standard solutions for harsh production environments.

5. About Weber Marking Systems

Weber Marking Systems is a renowned manufacturer of industrial marking systems made in Germany – including professional inkjet printers, labeling systems and RFID technology. Our innovative solutions maximize efficiency in production and logistics processes throughout all industries. With several headquarters in Europe and North America and a great international network of distributors, we provide excellent service and support worldwide.

Ready to take your marking and coding to the next level?

Contact us for a FREE expert consultation!

Weber Marking Systems
Maarweg 33
D-53619 Rheinbreitbach

Tel.: +49 (0) 2224/7708-0
Fax: +49 (0) 2224/7708-20

info@weber-marking.com
www.weber-marking.com