

TOGETHER, LET'S  
CHANGE THE FUTURE  
FOR THE BETTER

MEET  
**JET | BAG**  
BY LEONARDO TECHNOLOGY

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WHAT  
CAN WE DO  
ABOUT IT?



DOD inkjet printer with high print resolution for environmentally friendly printing of paper packaging in packaging machines.



## SUSTAINABLE MARKING IS OUR FUTURE

Sustainable product marking has become increasingly important in recent years as consumers have become more aware of the environmental impacts of the products they buy. Product sustainability is also becoming a key factor in the strategy of many manufacturers. It is a precautionary approach designed to optimise the environmental impact of products while maintaining their functional properties.

Environmentally friendly materials, recyclable packaging, environmentally friendly paints and production that saves resources and reduces packaging waste are becoming the number one theme. Sustainability is becoming an important focus and added value for companies. The onus is on manufacturers to reflect these requirements in their materials and help meet environmental goals. Legislators are responding to these trends with legislative standards that favour the use of modern materials while burdening standard materials with taxes, such as the plastics tax introduced by the European Union from 1 January 2021.

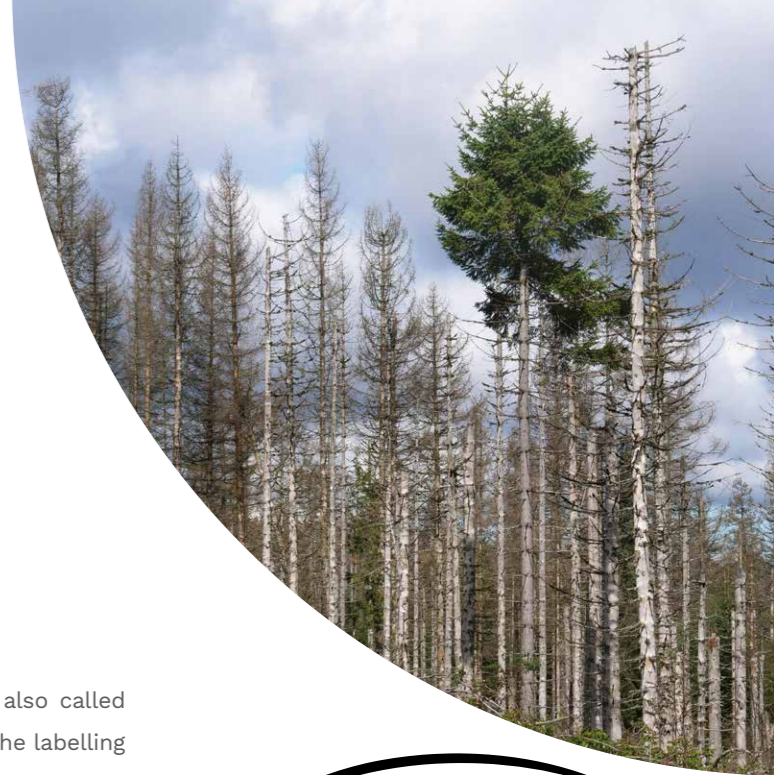
For businesses, sustainable marking can help differentiate their products in a crowded marketplace and appeal to consumers who are increasingly interested in sustainability. In addition, adopting sustainable practices can lead to cost savings and efficiency gains, as well as improved brand reputation and customer loyalty. Overall, sustainable product marking is an essential aspect of promoting sustainable development and our better future.



## REDUCE CO<sub>2</sub> EMISSIONS AND ELIMINATE WASTE

Did you know that labeling uses a backing paper, also called liner, which is a net waste and difficult to recycle? The labelling industry is responsible for over 40 billion m<sup>2</sup> of liner paper per year. On average, 50-60% of the material used to make labels ends up in landfills. This equates to more than 10 million tonnes of unnecessary CO<sub>2</sub> emissions per year.

**Direct printing with eco-friendly inks saves our planet's lungs by eliminating the need to cut down trees to make paper and reducing waste. It's becoming by far the most sustainable way to mark.**



IT STARTS WITH SUSTAINABLE PRINTING



## REPLACEMENT OF PLASTICS FOR SUSTAINABLE PACKAGING

The European Union has set clear requirements for sustainable packaging with the aim of reducing the amount of plastic and promoting the use of recyclable materials. To achieve these objectives, alternative options are being explored to plastic materials. New technologies and materials are being developed to replace plastic packaging. The use of recyclable paper packaging is proving to be an ideal and inexpensive substitute. This not only helps to conserve fossil fuels but also contributes to reducing the amount of plastic waste in the environment.

One of the main advantages of paper packaging over plastic packaging is its biodegradability and compostability. While bio-based plastics, for example, are not guaranteed to be biodegradable in nature, paper packaging can be broken down by micro-organisms into harmless particles such as water and carbon dioxide. Another advantage of paper packaging is its lower carbon footprint compared to plastic packaging, as it requires less energy to produce.

In addition to environmental benefits, paper packaging can also offer aesthetic and functional advantages. Our innovative JetBag printer enables their eco-friendly printing directly in the packaging lines. The JetBag printer can thus easily create visually appealing designs while being environmentally friendly thanks to its eco-friendly printing method and elimination of paper waste. In addition, paper packaging can be designed to be durable and strong, providing ample product protection.

By using paper packaging, you can contribute to a more sustainable future.



40% of plastics used in the EU go into packaging

Each European produces an average of 180 kg of plastic packaging waste per year. In total, this amounts to a staggering 80.5 million tonnes of plastic packaging waste for the whole of Europe. The European Commission therefore proposes that all packaging should be recyclable by 2030. This means a significant reduction in the use of plastics!

## JETBAG PRESENTS THE SOLUTION

The JetBag printer is primarily designed to print sustainable wrapping paper such as "Speedbag" directly in the packaging machines and lines

JetBag uses environmentally friendly, vegetable-based inks without the presence of petroleum-derived mineral oils. The marking is thus easily biodegradable. In addition, JetBag's digital printing technology enables more accurate and efficient printing and completely eliminates paper waste generated during the labeling process. The involvement of the eco-friendly JetBag printer in the labelling of sustainable paper pack-

aging thus leads to a more environmentally friendly product. The smooth operation of the JetBag printer without the need for operator intervention is ensured by a central ink system and easy ink cartridge change during printing, which is monitored online. The central control system manages up to 8 printheads, each with a print size of 72 mm with flexible software solutions, ensuring high reliability and cost-effective operation.

The actual control electronics are designed based on Leonardo technology know-how. The actual control of the printer is done via a touch screen. You have complete information in one place about the entire printing system, such as on-line monitoring, current print price, number of prints, etc. As Leonardo technology is the



PRINTING SUSTAINABLE  
WRAPPING PAPER HAS  
NEVER BEEN EASIER.



manufacturer of the entire printer, it controls all the electronic parts, ink, software and mechanical. It can thus guarantee their quality and long-term reliability.

The JetBag printer has a print width of 300 to 600 mm depending on the configuration. Printing is carried out in one pass across the entire width of the packaging material, on the move, i.e. during unwinding. This does not stop or slow down production. Centering of individual prints is done in software, via the printer's touchscreen terminal or by using a Windows driver. This eliminates all mechanical adjustments to the print heads.

The special design ensures consistent and high-quality printing during production. The printheads use only the necessary amount of ink for printing, which is fed into them from pressureless containers located in the printer's cabinet. Refilling of ink into the non-pressure containers is automatic, so there is no need to switch off the print while the ink is being refilled. This makes JetBag printers easy to keep running and clean.

JETBAG  
HAS BEEN  
DEVELOPED  
SINCE 2013





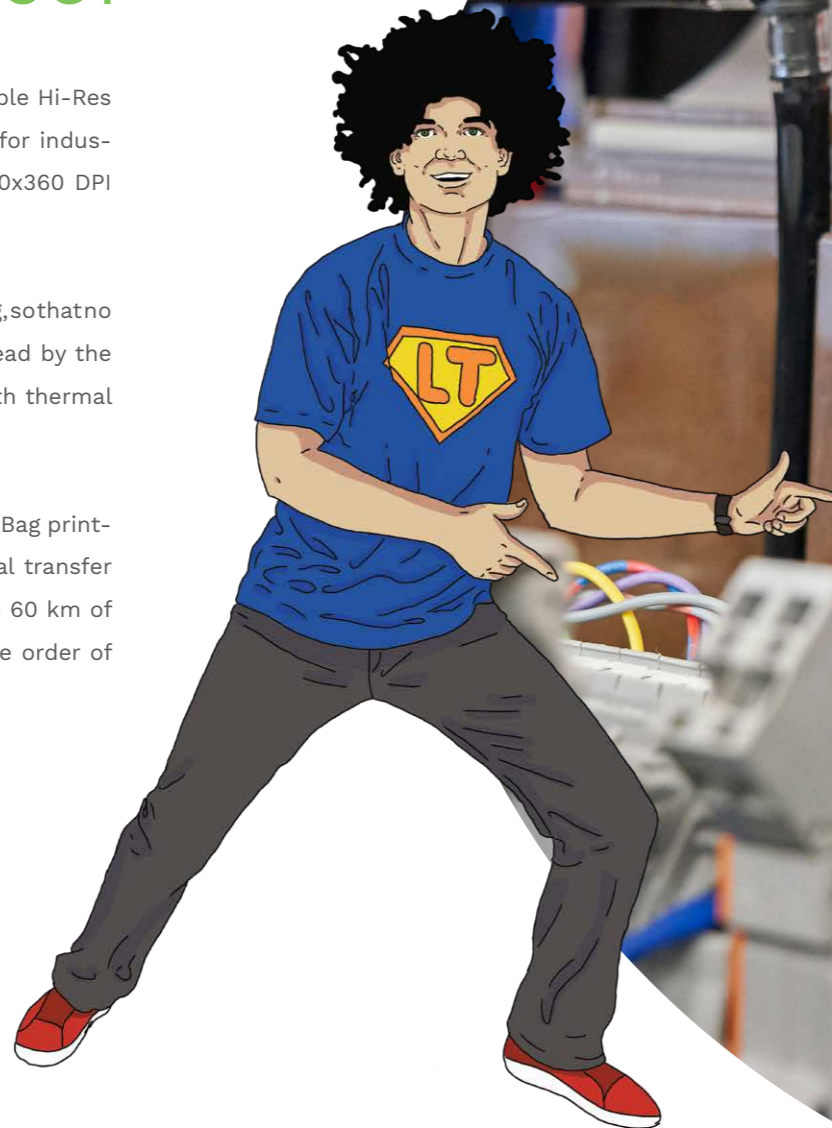
**SPECTACULAR DROPLET SIZE, GREAT PRINTING PERFORMANCE**

## PRINTING TECHNOLOGY

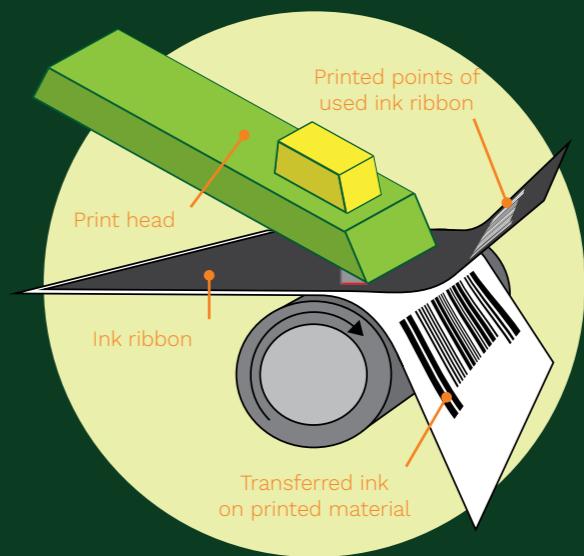
The JetBag printer uses Konica Minolta's highly durable Hi-Res piezoelectric printheads, which are fully compliant for industrial applications and boast high print quality at 360x360 DPI resolution.

The advantage of this technology is non-contact printing, so that there is no abrasion and degradation of the print head by the passage of thermal transfer ribbons, as happens with thermal transfer printers.

The lifetime of the piezoelectric printheads in the JetBag printer is thus in the order of many years, unlike thermal transfer printheads where the lifetime ranges from 30 km to 60 km of printed ink ribbon (depending on print volume in the order of months).

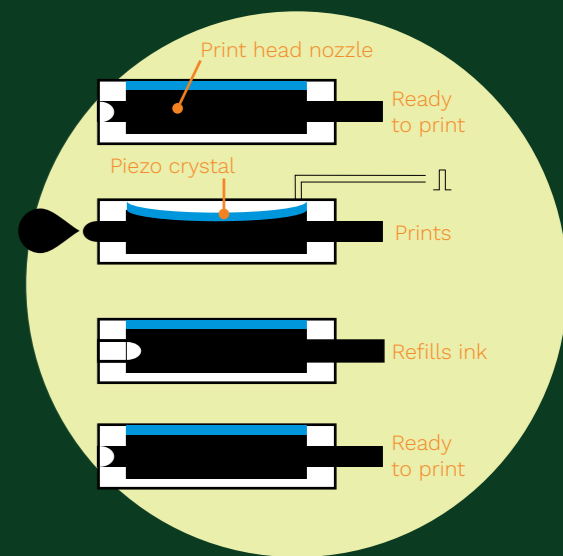


**360X360 DPI RESOLUTION AND A LIFETIME OF MANY YEARS**



### THE PRINCIPLE OF THERMAL TRANSFER TECHNOLOGY (THERMAL TRANSFER PRINTERS)

Thermal transfer film, or ink ribbon, is a PET film that has a thermosensitive active layer (ink) on one side and a protective and load-bearing silicone layer called backcoating on the other side. The active layer of ink is transferred to the printed material where it solidifies very quickly after being heated by the print head, which is in direct contact with it and produces the print.



### THE HI-RES PRINCIPLE PIEZOELECTRIC PRINTING (JETBAG PRINTER)

When the piezo crystal deflects due to the applied voltage, the volume in the nozzle of the Hi-Res print head decreases, the pressure increases and the droplet is ejected onto the printed surface. The voltage pulse dissipates and the piezo crystal deflects back to its original position and uses its force to draw more ink from the reservoir to fill the nozzle. This makes the nozzle ready for printing again. Printing is non-contact, so there is no degradation of the print head.





## SAY GOODBYE TO COSTLY INK RIBBON AND REDUCE WASTE

With conventional thermal transfer printing systems, it was necessary to order and stock quantities of thermal ink ribbons for different widths and types of equipment. Since the JetBag printer uses eco-friendly ink in a fully recyclable bottle for marking, the amount of consumables ordered can be greatly reduced and the costs associated with storing large quantities of thermal transfer ink ribbons can be minimised.

### ELIMINATION OF CO<sub>2</sub> EMISSIONS FROM THE DISPOSAL OF INK RIBBONS

The disposal of ink ribbons used in conventional thermal printers leads to CO<sub>2</sub> emissions as it is a waste that cannot be recycled. However, because the JetBag printer does not use ink ribbons but eco-friendly ink in a fully recyclable bottle, these CO<sub>2</sub> emissions can be completely eliminated and the costs incurred for municipal waste disposal can be minimised.

**JETBAG REDUCES CO<sub>2</sub> EMISSIONS FROM TAPE DISPOSAL BY 1.08 TONS/YEAR AND FREES UP SPACE IN THE WAREHOUSE!**



**THIS IS SUSTAINABILITY IN PRACTICE**

## PRACTICAL EXAMPLE

Using the example of packaging components in sustainable paper packaging with printing in a vertical packaging machine, the comparison of savings is clear.

- Working speed: 40 pcs/minute
- Number of working shifts: 1 (8 hours), 19.200 pcs/shift
- Measurement duration: 1 month (20 working days), 160 hrs.
- Marked area: 100 x 130 mm (H x W)

### CONSUMABLES

#### ink ribbon (thermal transfer printer)

- Size: 130 mm x 600 mm
- Weight: 700 g
- Disposal: municipal waste (ink ribbon cannot be recycled)

64 ink ribbons will be consumed during the monitored period and 45 kg of waste created - 540 kg of municipal waste per year, this corresponds to approximately 1.08 tons of CO<sub>2</sub> emissions during disposal.

#### BIOBASED INK (JetBag printer)

- Packaging: 1L plastic bottle
- Weight: 137 g
- Disposal: recyclable plastic bottle

1 bottle of ink will be consumed during the monitored period and created 137 g of plastic recyclable waste - 1,644 Kg of recyclable plastic waste per year.

Example of compared label

**Leonardo technology**  
AUTOMATIZACE PRŮMYSLÉVÉHO ZNAČENÍ

Leonardo technology s.r.o.  
Ulička 37, 691 43 Hlohovec  
www.LT.cz

Datum výroby: 24. 5. 2023  
Krajina původu: Made in Czechia  
Hmotnost: 450 g

Vytištěno tiskárnou JetBag, která je primárně navržena pro potisk udržitelného balicího papíru přímo v balicích strojích a linkách ekologicky šetrnými inkousty.

**Montážní set - 564001235**

8x

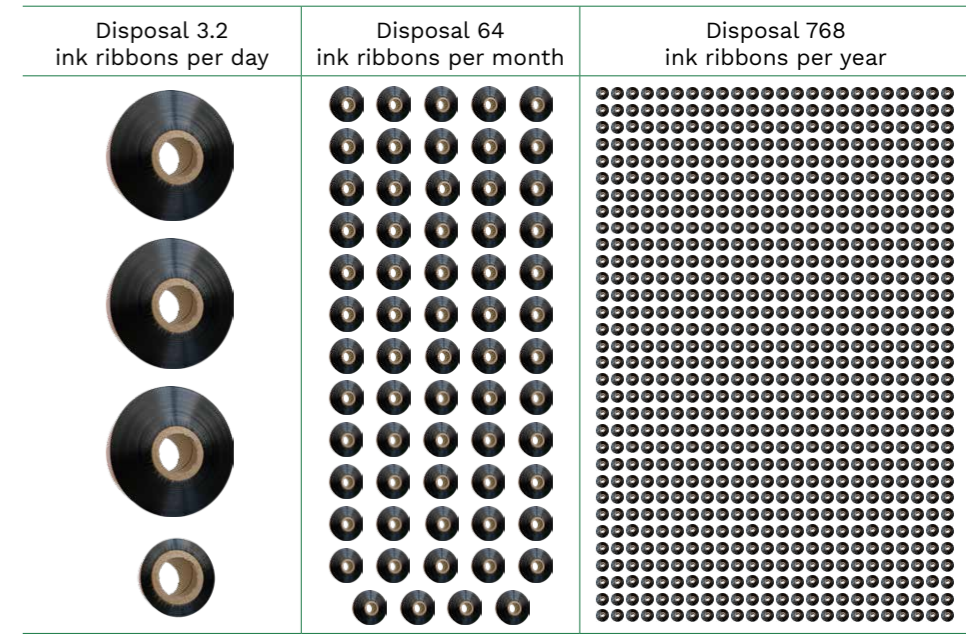
6x

10x

4x

8x

1x

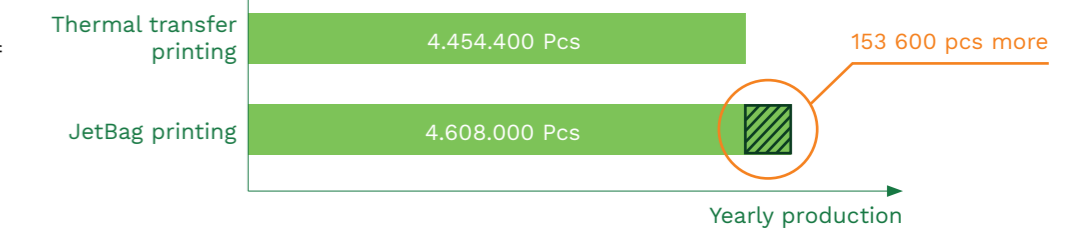




## REDUCE PRODUCTION TIME AND SAVE ENERGY

With conventional thermal transfer printers, line shutdowns are necessary to change ink ribbons. It takes an average of 5 minutes to change a single ink ribbon, and during this time the entire production line is at a standstill. This is not the case with the JetBag printer. If the eco-friendly ink in the bottle runs out, the operator can replace the bottle while the entire line is running because the printer has subtanks from which it draws ink for the current print. With an empty ink bottle, the JetBag printer can still print in the order of tens of minutes, which is enough time to change the bottle.

By eliminating this line downtime, you can reduce production time and the amount of energy required to run the line.



NO DOWNTIME AND FASTER PRODUCTION

## PRACTICAL EXAMPLE

Using the same case study, we will show how a simple replacement of a thermal printer with a JetBag printer will increase production.

- Working speed: 40 ppm
- Number of working shifts: 1 (8 hours)
- Tape change frequency: 3.2 per day
- Ink ribbon change time: 5 minutes per change

Using a JetBag printer, you will save 64 hours (8 working days) per year, producing 153,600 more products for the same amount of energy and labor costs.



## UNIQUE BENEFITS

### Eco-friendly inks

The JetBag printer uses only the necessary amount of eco-friendly, plant-based inks for printing, which are biodegradable and compostable. This prevents the environment from being polluted by mineral oils derived from petroleum.

### Accurate and fast

The special design ensures consistent, high-quality printing during production without disrupting production speed. The printer has a resolution of up to 360x360 DPI.

### Easy to use

The printer is controlled by its own software using an intuitive control terminal, where all important elements for the operator are located, or by a Windows driver.

### Maintenance-free design

The printer is manufactured to the highest technical standards. It has unique features that make it reliable and easy to maintain. The entire enclosure is stainless steel.

BRINGS SAVINGS TO PRODUCTION



ECOLOGICAL COLOURS ARE RECYCLABLE AND COMPOSTABLE



INTUITIVE  
AND EASY!

I CONTROL IT  
VIA TOUCH TERMINAL  
OR WINDOWS DRIVER



## INTUITIVE CONTROLS

### Easy to use

Based on our practical experience accumulated over many years of developing various marking devices, we have designed a simple and intuitive touch panel operation that requires no special training or knowledge to use.

### Live tiles for convenient operation

The design of the colorful live tiles on the main screen touch terminal allows for basic setup and operation of the printer. The size of the controls is adapted for operation with gloves. The JetBag printer does not require configuration of complex parameter settings. Marking conditions can be easily adjusted using intuitive software options.

Settings can also be made using the printer driver for Windows systems.

The marking settings for individual products can be pre-configured making it easy to automatically switch on a pre-registered marking position by simply toggling the marking settings.

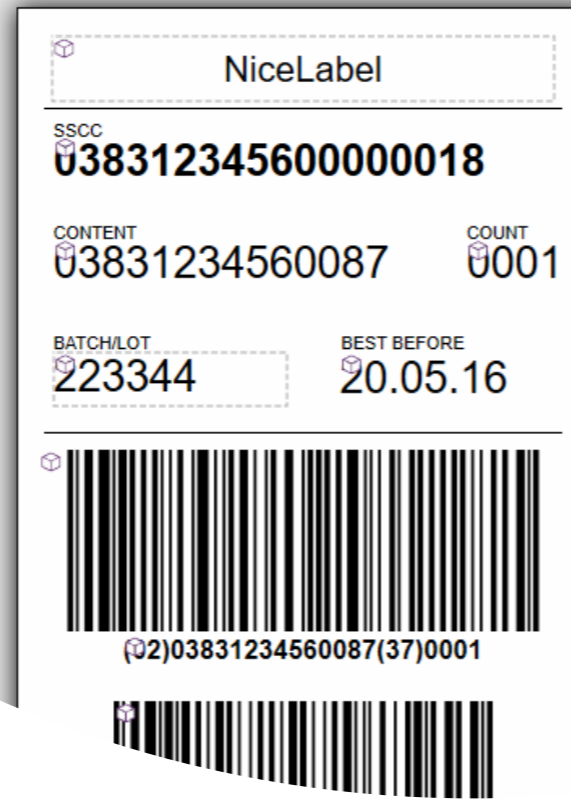
There is also only a power button on the printer and a button to move the printer to the service or ready to print position.

## SOFTWARE SOLUTION WITH CONNECTIVITY TO CORPORATE SYSTEMS

Leonardo technology is able to equip your systems from simple software applications for management and printing to the most complex ones with connection to ERP and MES production management systems and corporate networks, databases and various higher-level systems using NiceLabel software.

NiceLabel professional software is a very user-friendly comprehensive print manager from label design and printing with support for barcodes, 2D codes, RFID technology to central label management for larger companies, allowing the administrator to manage globally using a defined repository, password protect labels and assign rights to specific labels.

**The JetBag printer can be controlled directly by NiceLabel software and connected to your business systems and databases.**



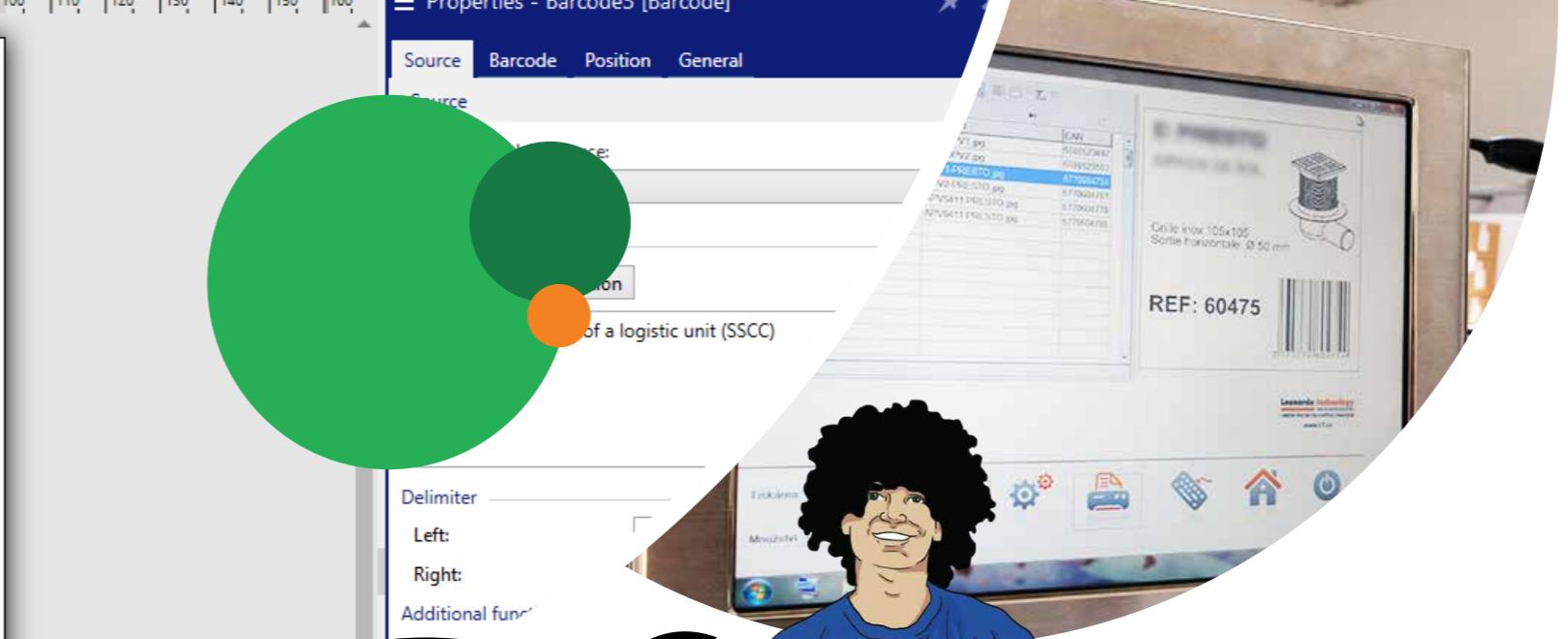
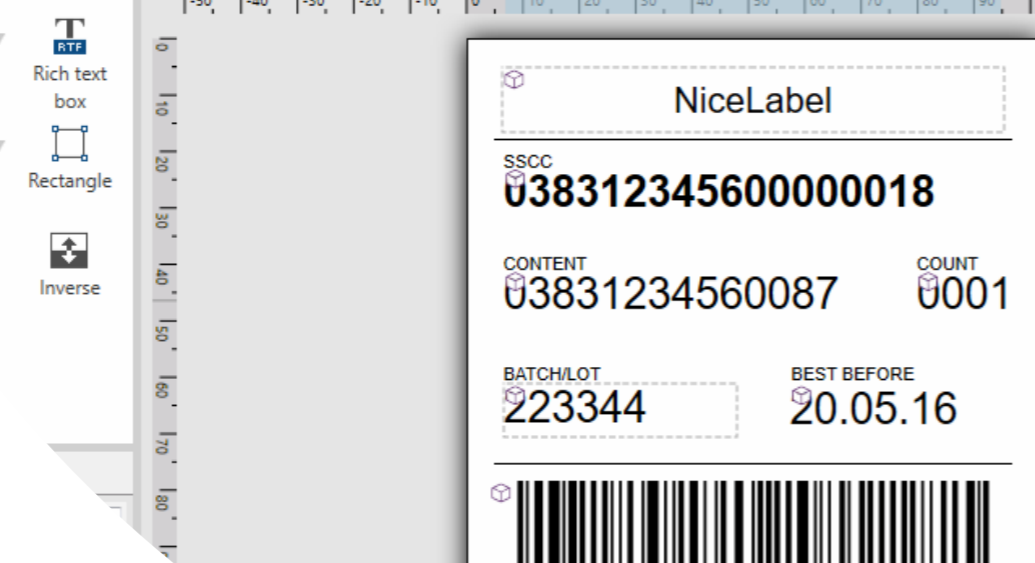
CONNECTING PRINTERS TO MANUFACTURING ERP, MES AND OTHER SYSTEMS IS A PIECE OF CAKE



## CLOUD SOLUTIONS

Don't have an IT infrastructure? No problem. With the Leonardo NiceLabel Cloud Label Management System, you can use all the features of the NiceLabel Label Management System in minutes with minimal resources. Centralize data and label management, integrate printers with enterprise systems, and standardize labeling on a single platform.

**The digital transformation of marking into a single platform is the future of marking.**





## PREMIUM SERVICES BY LEONARDO

At Leonard, we provide first-class individual care, which is a bonus to every customer. This is only possible thanks to our modern facilities with a call centre, a large number of specialists and a team of 31 service technicians and our own spare parts warehouse. We have 15,000 stock items with 800,000 products available for immediate release from stock with a total value of 65 million CZK. This ensures maximum care for your spare parts and consumables needs. Your production never stops.

### TOP QUALITY SERVICE

Our service technicians can resolve more than 80% of the problem over the phone or online through a remote software application. If they still drive out for a service call, we have over a 99% success rate of fixing the problem at the customer's first call. This minimizes downtime in production.

### CALL CENTRUM +420 533 44 55 66

It's important to have a quality call centre that can answer your questions correctly and resolve any issues. At our service call centre, we understand the importance of providing quality customer service. Our team is available 24 hours a day, 7 days a week to answer any questions and provide assistance with troubleshooting, routine prophylaxis and service.

SYNERGY  
IN SERVICES AND  
SERVICE FROM ONE  
SUPPLIER



EVERYONE  
IS IMPORTANT  
TO US



**Leonardo** technology

AUTOMATIZACE PRŮMYSLOVÉHO ZNAČENÍ