

Habasit Smart Printing Belt

Setting a new standard
in digital printing precision



Innovation without precedent.

Precision without compromise.

In digital printing, **accuracy and performance** are key to delivering results. Traditional belt systems – held back by mechanical tolerances – limit these goals. That's why Habasit created the Smart Printing Belt, a patented, end-to-end solution that redefines belt position measurement. While leading printers manage $\pm 50\text{--}150\text{ }\mu\text{m}$ belt

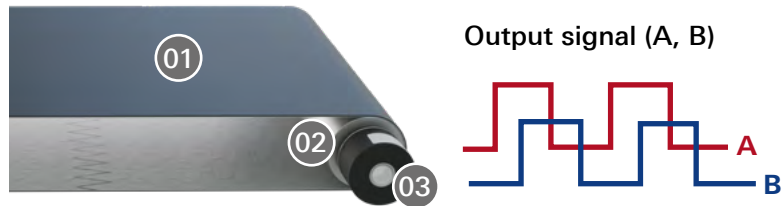
position accuracy, the Smart Printing Belt achieves **repeatable $\pm 10\text{ }\mu\text{m}$ precision**, thanks to a radical new measurement methodology.

Developed entirely in-house, this unique solution is real-time, reliable, and more accurate than anything else on the market. Ideal for complex designs on textiles, detailed ceramics, and wood, it ensures print stability, clean registration, and top-quality results – **without the need for machine redesign**.

10 microns – how is that even possible?

Indirect belt position measurement (the standard industry methodology)

- 01 Printing Belt
- 02 Driver roller
- 03 Rotary encoder



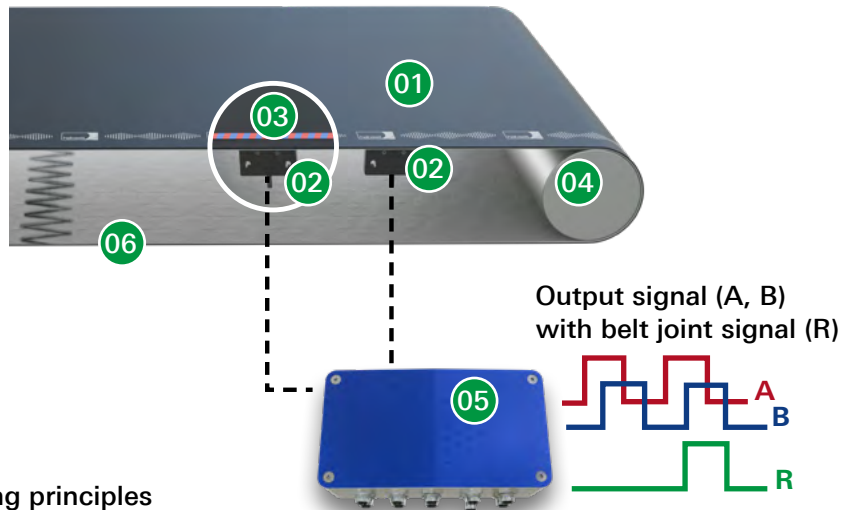
Indirect belt position measurement using a rotary encoder often leads to inaccuracies caused by:

- Mechanical tolerances, such as gearbox or motor play and roller runout.
- Belt-related challenges, like tension or belt joint effect.

When print positions shift and registration becomes unreliable, every error impacts performance – particularly on long print paths with multiple print bars and stations.

Direct belt position measurement with the Smart Printing Belt by Habasit

- 01 Smart Printing Belt
- 02 Sensor head
- 03 Embedded magnetic layer
- 04 Driver roller (not included)
- 05 Central processing unit
- 06 Belt joint



Habasit Smart Printing Belt working principles

- Magnetic layer embedded inside the belt
- Four sensors mounted under or above the belt
- A processor calculates position in real time
- Digital twin model continuously updates via machine learning
- Standard output signals compatible with existing systems

How it works

By measuring position **directly from the belt** itself, thanks to a magnetically embedded layer and four sensors feeding real-time data into a central processor, this system leverages a digital twin for instant modeling and correction. The result is industry-leading accuracy of $\pm 10 \mu\text{m}$ – no moving sensor parts, no encoder drift, and no reliance on operator calibration. Experience unmatched predictive intelligence and stability, with perfect droplet placement, reduced setup times, and higher productivity – even in your most complex applications.

The advantages:

- Eliminated inaccuracies caused by moving components.
- A central processor equipped with a self-learning digital twin that dynamically adjusts belt position in real time.

Key benefits at a glance

Repeat accuracy



- No more seams and printhead overlaps.
- Sharper, crisper details with sub-pixel precision – no banding or blurring.
- Consistency in returning to the same position indefinitely.
- Consistent positioning for precise reproduction of signature designs.
- Repeat accuracy even over long runs exceeding 500 meters.

Consistent precision



- No manual recalibration required anymore.
- Automatic, continuous calibration.
- Belt position adjustments to changing conditions without disrupting production.

Reliable and durable



- Direct belt position measurement, independent of any moving parts.
- Built on the best-in-class Habasit Printing Belt for superior performance.

Easy integration

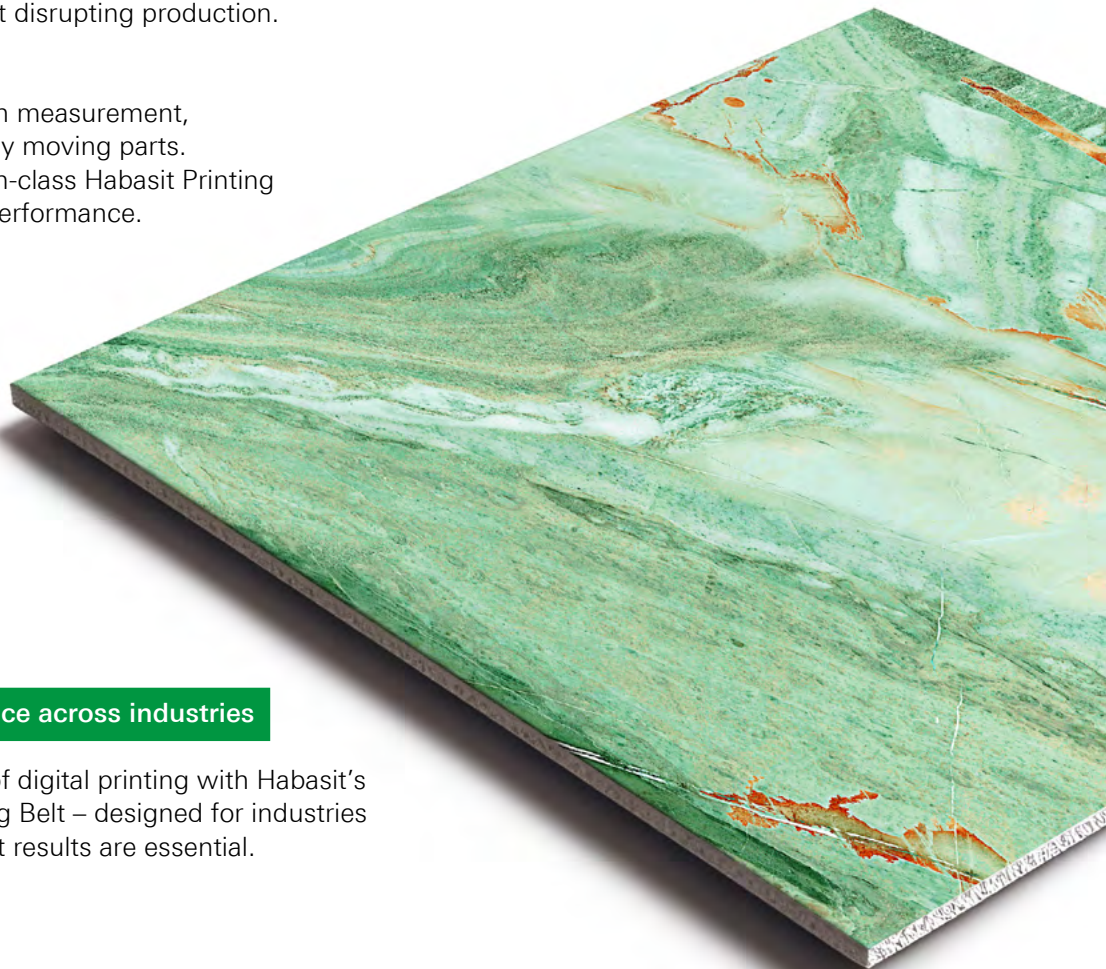


- Simple to integrate with both new machines and retrofit systems – no machine redesign required.
- Sensors can be mounted above or below the belt.
- The belt can be joined directly on the machine, just like a standard belt.

Cost savings



- Reduced waste and rework, with fewer errors leading to less scrap and ink waste, thanks to repeat accuracy and consistent precision over time.



Designed for high performance across industries

Step into the next generation of digital printing with Habasit's patent-protected Smart Printing Belt – designed for industries where precision and consistent results are essential.

Perfect for:

- Textile printing
- Ceramic tile decoration
- Cardboard and packaging graphics
- Wood-based and engineered panels
- And other high-resolution applications

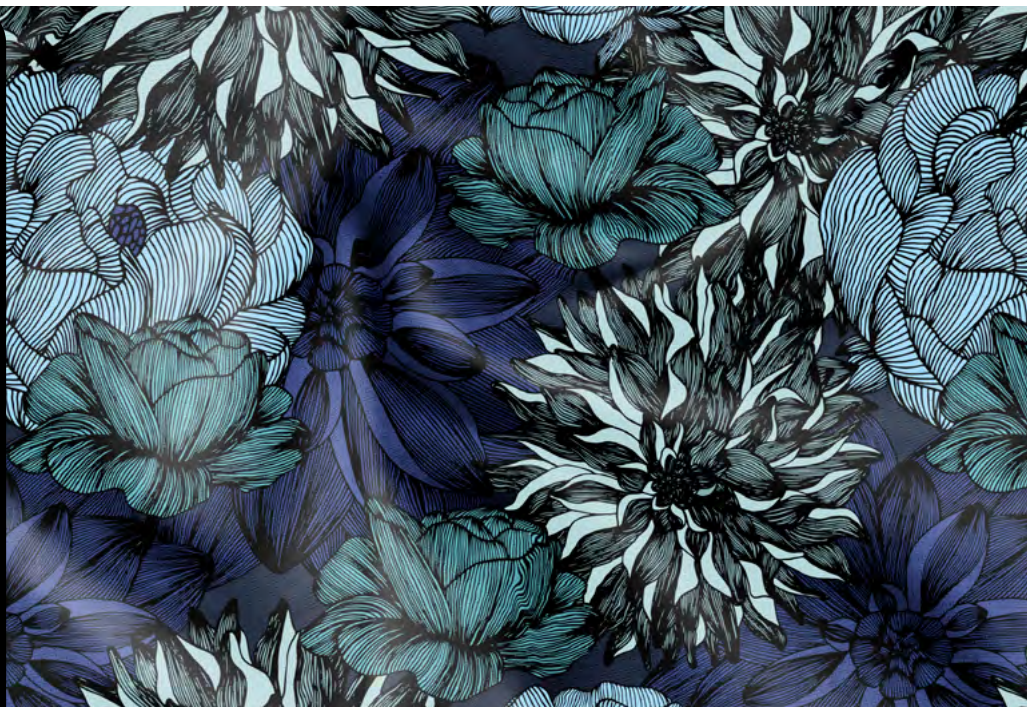
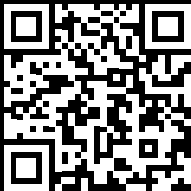
With chemical resistance, thermal stability, and real-time calibration, it's ready for the most demanding environments – and the most ambitious designs.

Ready for smarter printing?



Reimagine what's possible in digital printing. Discover with your local Habasit expert how the Smart Printing Belt can enhance your precision, simplify setup, and increase productivity.

Scan this code to
download the technical
specification sheet of the
Smart Printing Belt:



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