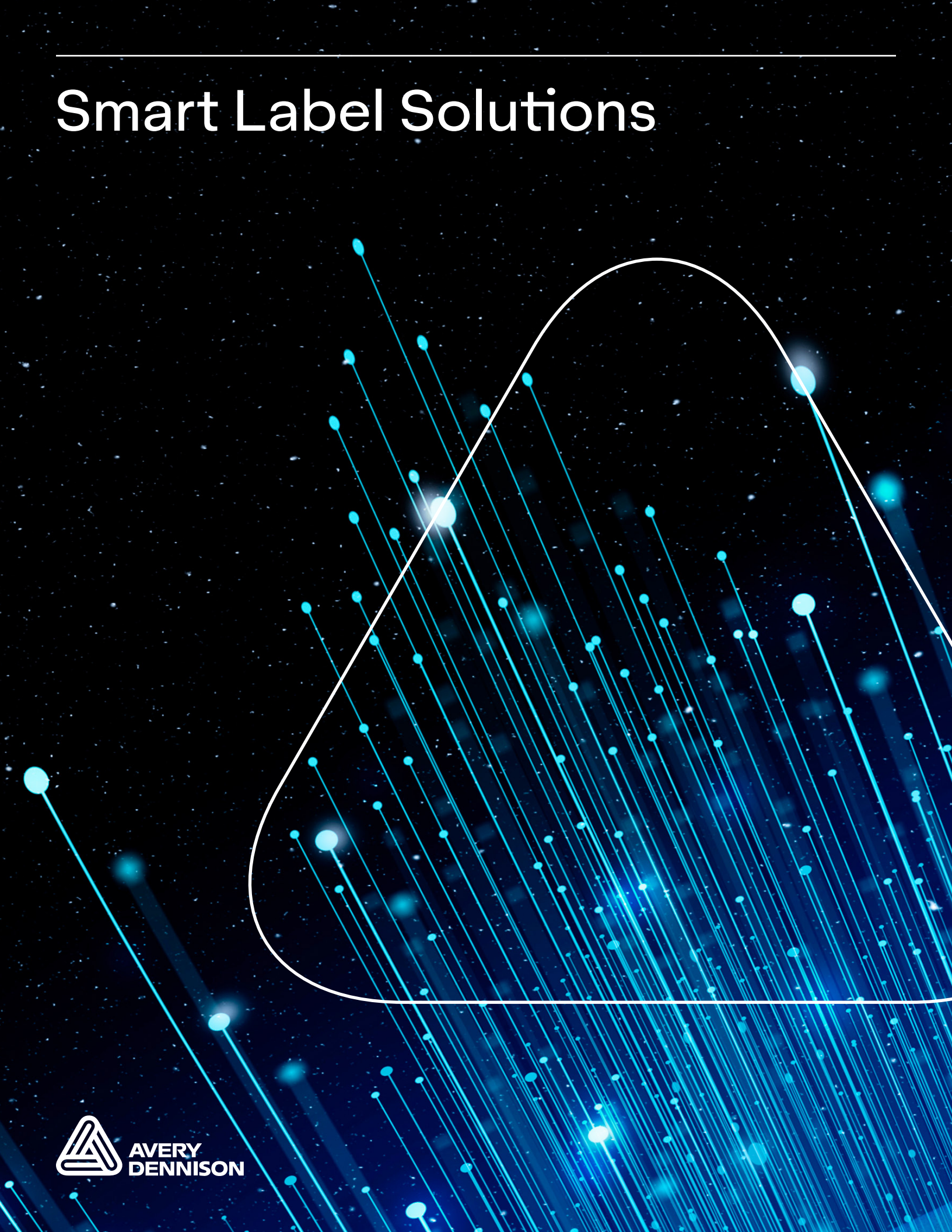
Smart Label Solutions



AVERY DENNISON

Whether you want to digitize and authenticate products, track items, optimize your supply chain or enhance consumer encounters, Avery Dennison Smartrac's RFID technology portfolio can fulfill your needs.

As the world's largest RFID manufacturer, we have the industry's most comprehensive selection of products in the UHF and HF/NFC frequency bands. Expertly manufactured, thoroughly tested and designed for minimal environmental impact, our offerings can be fully customized, broadening their fields of application even further.

Considerations	Inlay type	Conversion	Process
• Mid-high volume orders • Dedicated/more complex • Higher cost of entry	**Dry inlay**	**Off pitch**	**Insertion**
• Mid-high volume orders • Low entry cost • Servo press requirement • Allows custom face stock • <2 inch pitch cost effective	**Dry inlay**	**On pitch**	**Lamination**
• Low-mid volume orders • Low cost of entry	**Wet inlay**	**Off pitch**	**Insertion**
• Mid-high volume orders • Low entry cost • Servo press requirement • Standard print process • Most sustainable	**Label/sticker**	**N/A**	**Resell**

Glossary

Off pitch
Finished tag can be any length, independent of the original inlay pitch.

On pitch
Finished tag must be the same length as the original inlay pitch.

Insertion
Process in which the inlay is inserted below the facestock of the finished label.

Lamination
Process in which the inlay carrier is used as the facestock for the finished label.

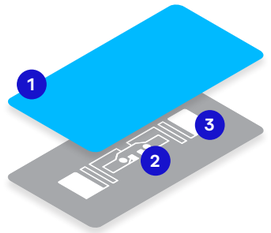
Converting RFID

Many converters can continue working with their preferred conversion equipment manufacturer to identify an efficient and scalable RFID solution.

In addition, an experienced inlay supplier can also help identify important components and functions needed to deliver RFID inlays and tags for specific end uses. However, you must decide what delivery format to convert.

There are three main types of inlay delivery formats: dry, wet and label/sticker. Your equipment capabilities and long term goals in the RFID market will influence which one you'll focus on.

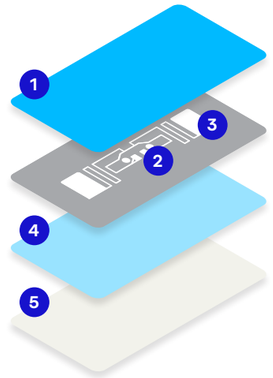
Dry inlay



1. Inlay carrier
2. Chip
3. Antenna

- Paper, film or fabric
- No adhesive
- Unconverted format
- Tight pitch
- Compatible with transfer tapes and gum twins, which add adhesive properties. See our Custom Label Constructions guide for more info.

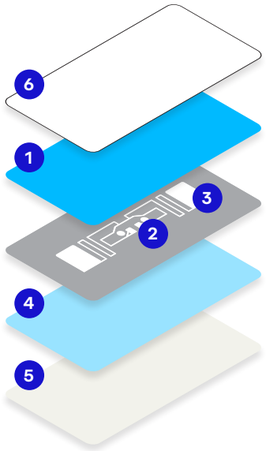
Wet inlay



1. Inlay carrier
2. Chip
3. Antenna
4. Pressure sensitive adhesive
5. Liner

- Paper or film
- Adhesive and liner
- Not intended for printing
- Tight pitch
- Die cut

Label/sticker inlay



1. Inlay carrier
2. Chip
3. Antenna
4. Pressure sensitive adhesive
5. Liner
6. Printable facestock

- Paper or film facestock
- Adhesive and liner
- Printable label
- Die cut
- Facestock can be with our sustainable product Smartface™

RFID converting process

RFID capability can be integrated into an existing label conversion process with the addition of an insertion module.

Depending on quality control and throughput demands, a more extensive equipment upgrade may be required. Let’s take a look at a wet inlay conversion process:

1. Delamination
First, the self-adhesive stock is delaminated by separating the liner and the facestock

2. Inlay inspection
Each inlay is read and verified individually before insertion, though this step is often optional, depending on the insertion module

3. Insertion
The individual inlays are dispensed/inserted onto the release liner to match the final product pitch

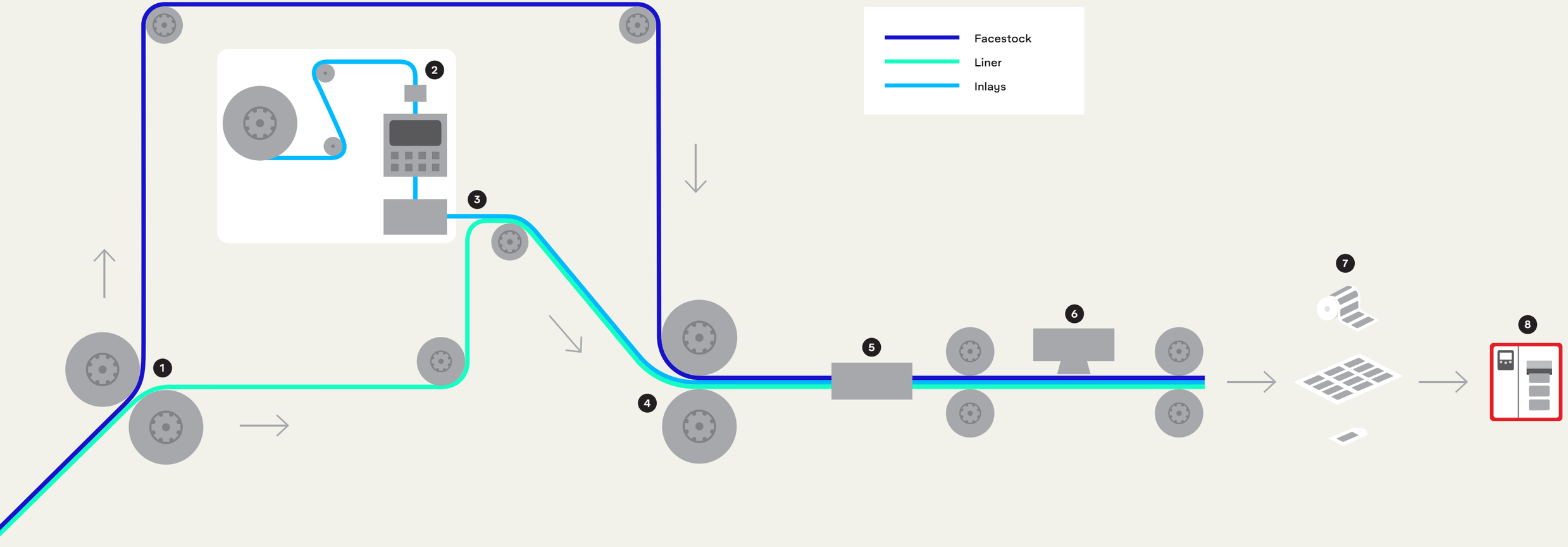
4. Lamination
The face material is laminated onto the top of the inlays

5. Die-cutting
The laminated material is die-cut in register with the inlays as a standard conversion process

6. Testing and marking
Each tag is individually tested for quality and accuracy as part of end-of-line readability verification. Any defective tags are marked, and depending on the converter process, typically replaced during a second stage

7. End product format
The end product can be converted into rolls, sheets or finished products, such as labels and tags

8. Printing and encoding
The finished RFID tag/label can be programmed and encoded with the required information, which can take place during the imprinting process or separately



How to choose the right supply partner

The key to developing a successful intelligent labels business is choosing the right inlay provider. Consider these factors:

Portfolio size

Product portfolio size is crucial when selecting an RFID supplier, as you need tags with inlays that work on many items. Avery Dennison Smartrac offers the market's largest array of RFID inlays, including NFC and passive HF and UHF options, as well as multiple inlay sizes, shapes and features.

Quality control

In a production run, some RFID tags can have a short read range or be completely dead due to a defective chip or another issue. Our extensive quality control processes ensure excellent product performance and prevent defective tags from reaching customers.

R&D and technical support

Always work with a provider that can help you select the best tag for your needs and advise on placement of the finished label. Avery Dennison Smartrac tests product samples in a lab that simulates the setting they'll be used in, allowing us to determine the ideal inlay and positioning. If there is enough demand, we can also develop custom tags and labels for our partners at no extra charge.

Sampling and capacity

We can usually provide sample tags within 48 hours, making it easy to get them to customers who are interested in RFID. Once a sale is made, you also need access to a tag provider with the manufacturing capacity required to quickly deliver your order. We have the global distribution needed to make this happen, whether you are in Europe, Asia, North or South America or somewhere else.

Avery Dennison: your partner for intelligent labeling solutions

With our unique combination of materials expertise, end-to-end technology and global capacity for supporting customers, Avery Dennison is shaping the future of multiple industries by showing how to experience the benefits of giving nearly any item a unique digital identity.

label.averydennison.com

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