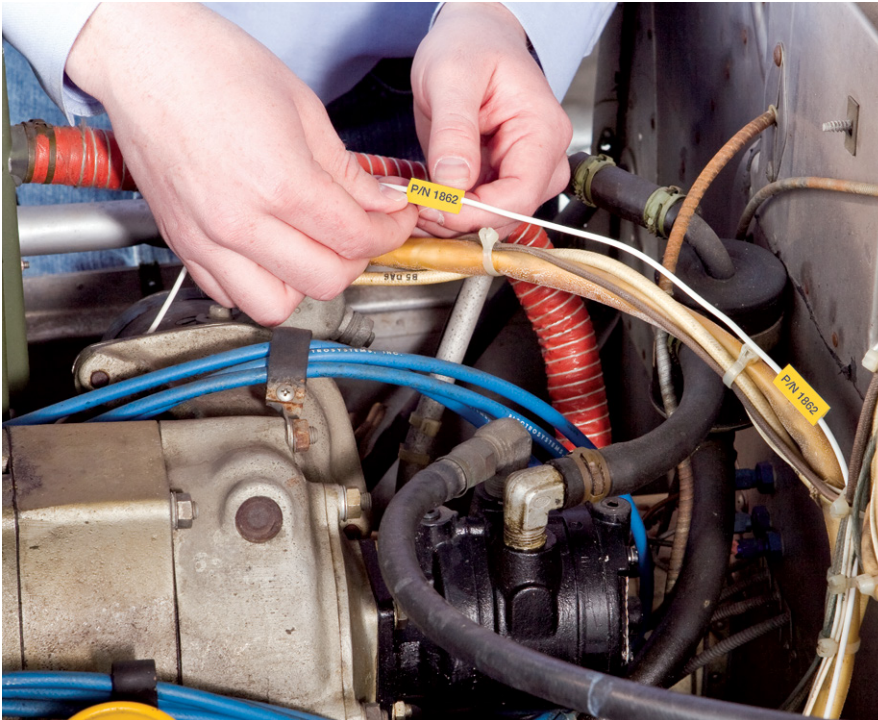




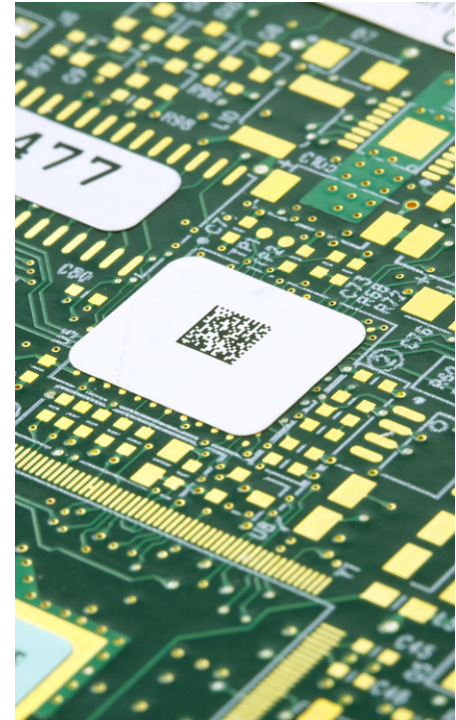
## Identification Solutions

in Rail Vehicle Manufacturing

# Rail Vehicle Manufacturing – Brady Collaborations



Wire identification with Diesel Resistant sleeves



Printed Circuit Board Identification

## Introduction



*“Brady has a long history working with industries, like Rail Vehicle Manufacturing, that require high quality, high performance products.”*

For over 100 years, Brady has created value for our customers by delivering innovative identification and protection solutions.

This is particularly true in the Rail Vehicle Manufacturing industry where we have created a diverse range of products to match the demanding needs of our customers.

While this book provides an overview of our product offerings, our capability set is considerably broader. We welcome the opportunity to develop custom solutions and have a dedicated product development team that can be reached through our local account representatives.

Yours sincerely,

## Russel Shaller

President Global Identification Solutions

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## Who is Brady?

Brady Corporation is a worldwide partner who develops and manufactures products to identify people, products and places. Brady's wide range of products provides a complete solution for a great many identification needs in the Rail Vehicle Manufacturing industry.



### Durable identification

Brady's identification solutions are developed for outstanding material strength and print permanence. Brady offers durable identification solutions, even for demanding environments.



### Easy to apply

Brady offers identification solutions that are quick and easy to apply, so you can achieve more in less time.



### On-site printable

Brady's identification solutions can be printed on-site and on-demand in your facilities. Alternatively, Brady will print your identification solution and deliver it anywhere in the world.

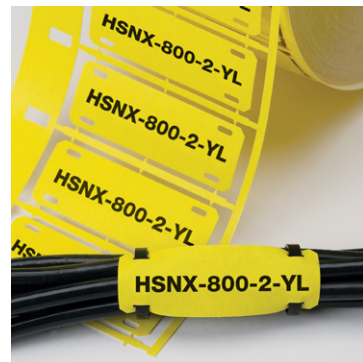
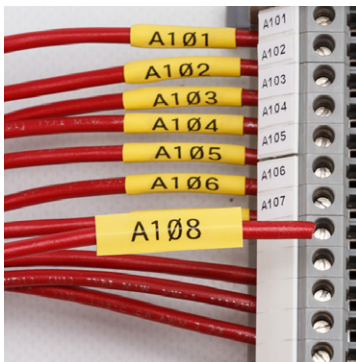
# Research Capabilities



If you have specific identification needs, contact Brady with any questions. Brady's R&D department will offer the most durable identification solution for your context, or custom develop a specialised solution for your identification challenge.

Brady's global R&D employs over 250 technologists in Europe, the Americas and Asia Pacific. Brady's R&D focuses on three major technology areas: materials, electro-mechanical systems and software.





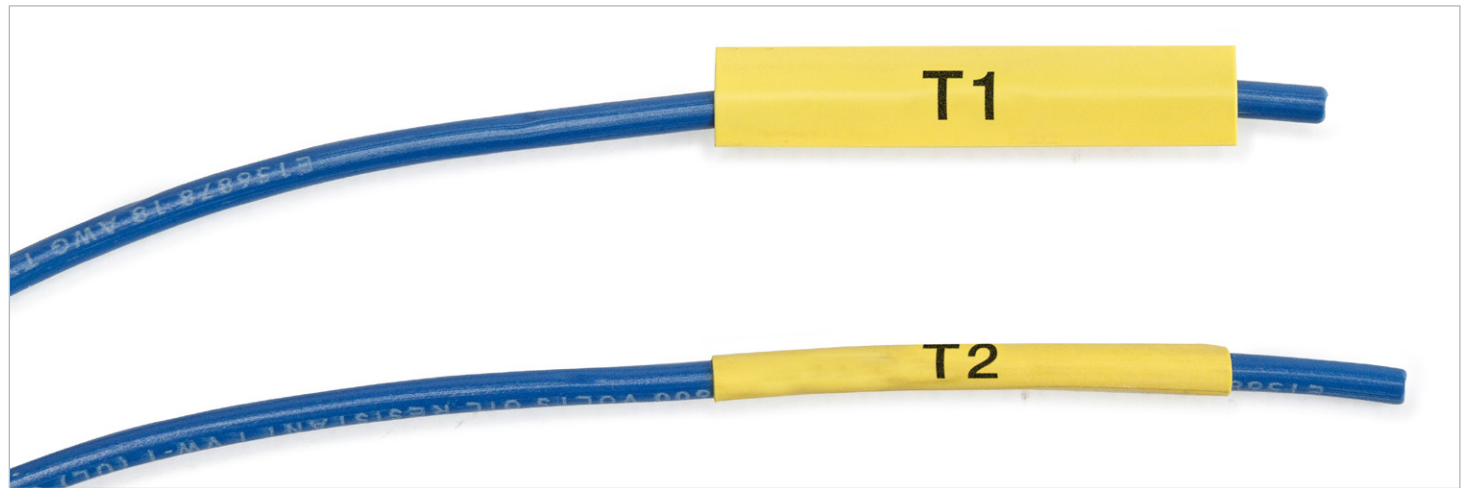
# Wire & Cable Identification Solutions

Brady's quality offer in wire & cable identification aims for durability and performance. Our wire & cable identification offer includes sleeves to identify and insulate wires nearly everywhere in a rail vehicle, and tags to mark cable bundles and harnesses.

All wire & cable identification solutions have been tested in Brady laboratories using standard test methods.

For more information on identification solutions, please visit [www.bradyeurope.com](http://www.bradyeurope.com).





# Standard Colour Sleeves

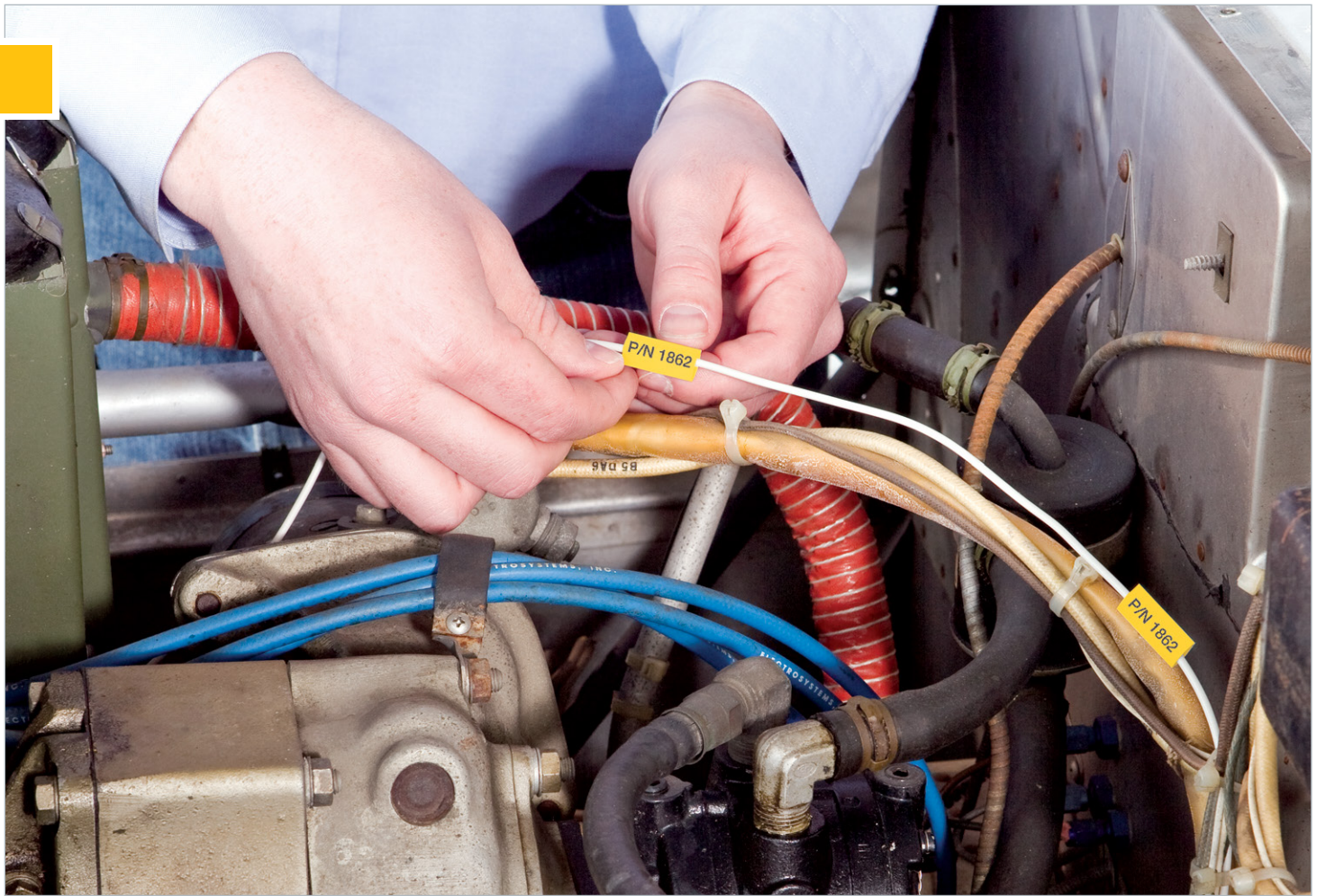
## Product

Brady offers a large range of heat-shrink sleeves to identify wires and cables before they are attached. Brady's most widely used B-342 sleeve is available in various standard sizes ranging from 2.4 mm to 38 mm in diameter. Available colours are white, yellow, red, blue, orange, green, grey, violet, pink and black. Standard Colour Sleeves are compatible with all Brady printing systems.

## Use

Standard Colour Sleeves can be used to identify circuits by function or voltage. The wide range of available colours allows for the implementation of colour codes in wire & cable identification. These sleeves are especially useful in electrical cabinets or other applications with standard requirements.

In-depth technical information can be consulted at [www.bradyeurope.com/tds](http://www.bradyeurope.com/tds)



# Diesel Resistant Sleeves

## Product

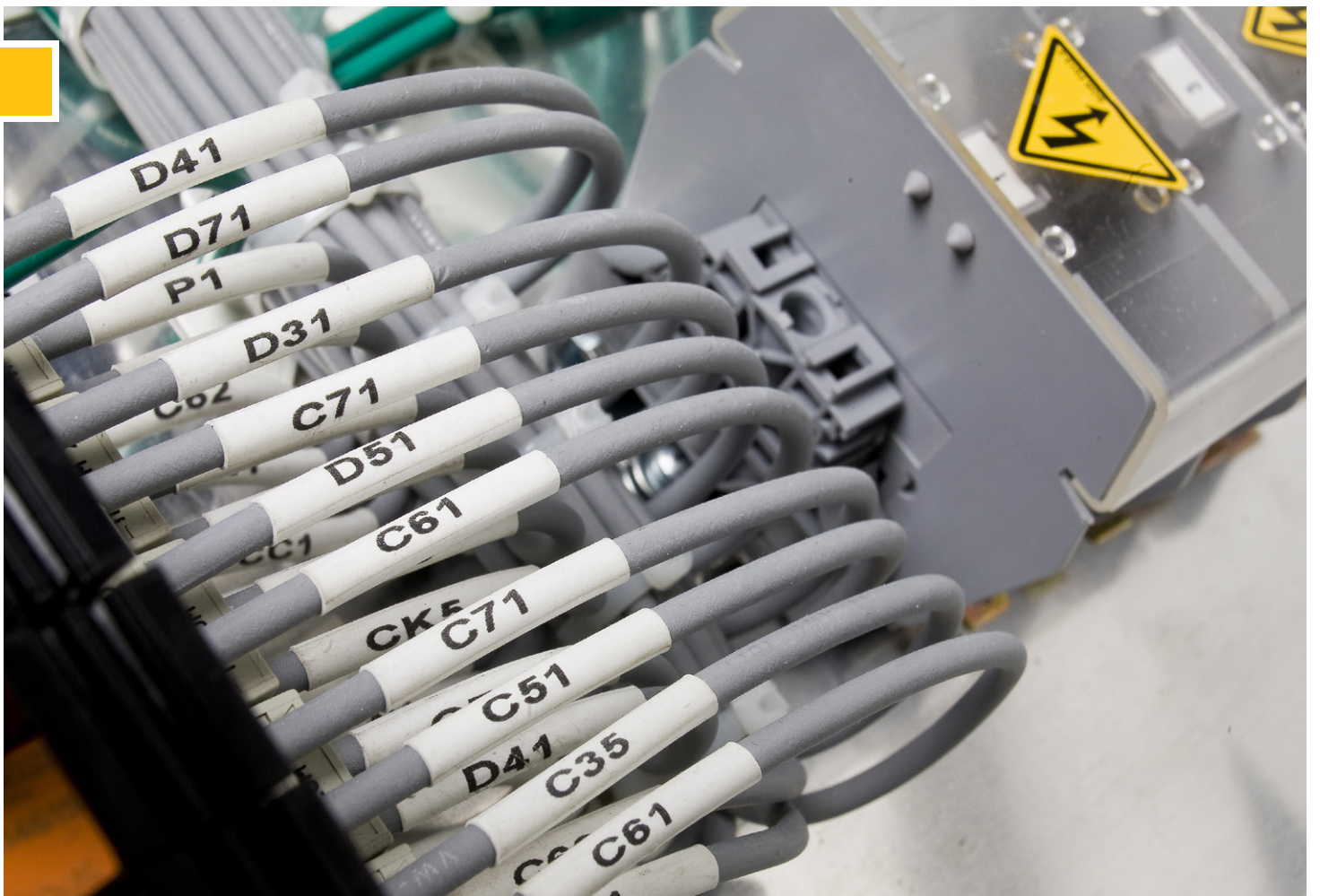
Brady's B-7646 Diesel Resistant Heat-Shrink Sleeves are developed specifically for rail vehicle manufacturing. These irradiated polyolefin sleeves have a very high diesel, chemical, UV and abrasion resistance. They are printable on both sides and exist in various sizes, ranging from 2.4 mm to 38 mm in diameter, offered either in die-cut or on a continuous roll.

## Use

Brady's Diesel Resistant Sleeves are compliant with the widely recognised NF F00-608 (Type H) Norm. They are a perfect identification product for wires and cables in rail vehicles. Designed to open easily, these sleeves can be quickly fitted on a cable or wire.

In-depth technical information can be consulted at [www.bradyeurope.com/tds](http://www.bradyeurope.com/tds)







# (Low Smoke) Zero-Halogen Sleeves

## Product

B-7641 Zero-Halogen Sleeve is a halogen-free flame retardant polyolefin sleeve, offered in a roll format and compatible with computer driven printers. B-7641 meets the halogen-free requirements as per DIN VDE 0472 part 815.

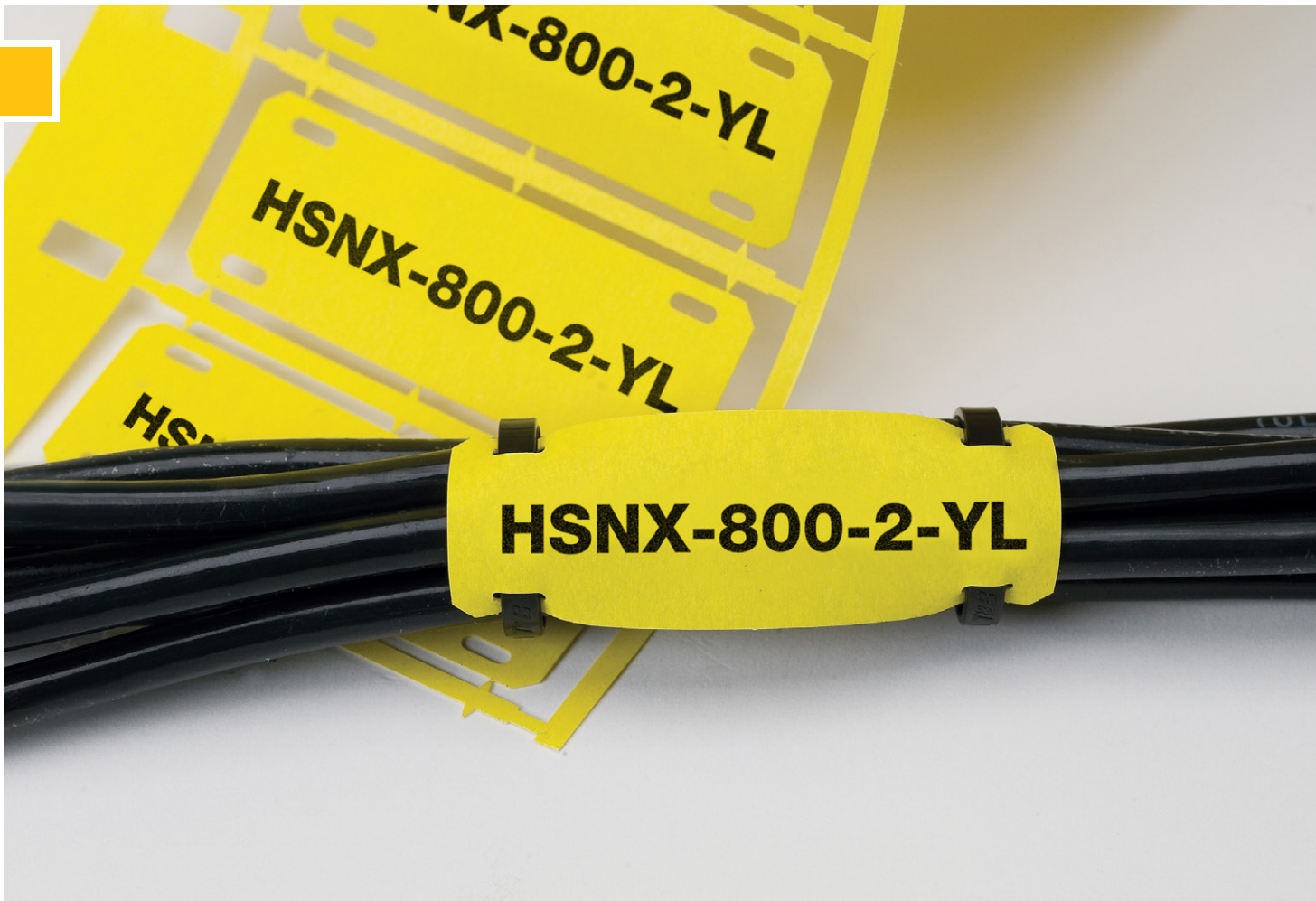
Brady is currently working on the launch of a new generation of Low Smoke Zero Halogen Sleeves.

## Use

Zero-Halogen Sleeves are used in closed areas to avoid lung damage in the event of a fire. Very little halogen gas is released when on fire.

The Low Smoke Zero-Halogen Sleeves in development will generate even less smoke when burning, to enable better visibility and faster evacuation. This product will comply with the new EN-45545 norm.

In-depth technical information can be consulted at [www.bradyeurope.com/tds](http://www.bradyeurope.com/tds)



# Cable Tags

## Product

Brady offers a wide range of tags in different materials, linked to specific requirements of the field. Stainless steel tags offer the best temperature resistance, up to 920°C.

B-508 Nomex® Tags offer excellent tear, solvent and heat resistance, with an operational temperature range of -70°C to +130°C. If zero halogen is required, B-7643 Thermoplastic Polyether-Polyurethane is a good alternative with a temperature resistance range of -40°C to +90°C.

## Use

Cable tags are used when various cable bundles or larger cables need to be identified. These tags can contain a lot of information and can be mounted and/or replaced without disconnecting the cable. In extremely hot and aggressive environments, stainless steel cable tags are the best choice.

In-depth technical information can be consulted at [www.bradyeurope.com/tds](http://www.bradyeurope.com/tds)



# Printing Solutions

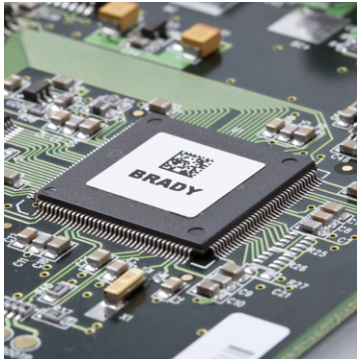
## Product

Professional Brady printers enable industries to print highly specialised identification labels and sleeves on-site and on demand. Partnered with extremely customisable software, adaptable to specific processes or data file formats, our printers support considerable gain in production time and flexibility. Brady offers both mobile and benchtop printers.

## Use

Once set-up, these solutions enable printing of interior and exterior identification, directly from the manufacturing database. The printing solution will even cut labels to size according to specifications. On-site identification printing capabilities eliminate the need to store every single label.



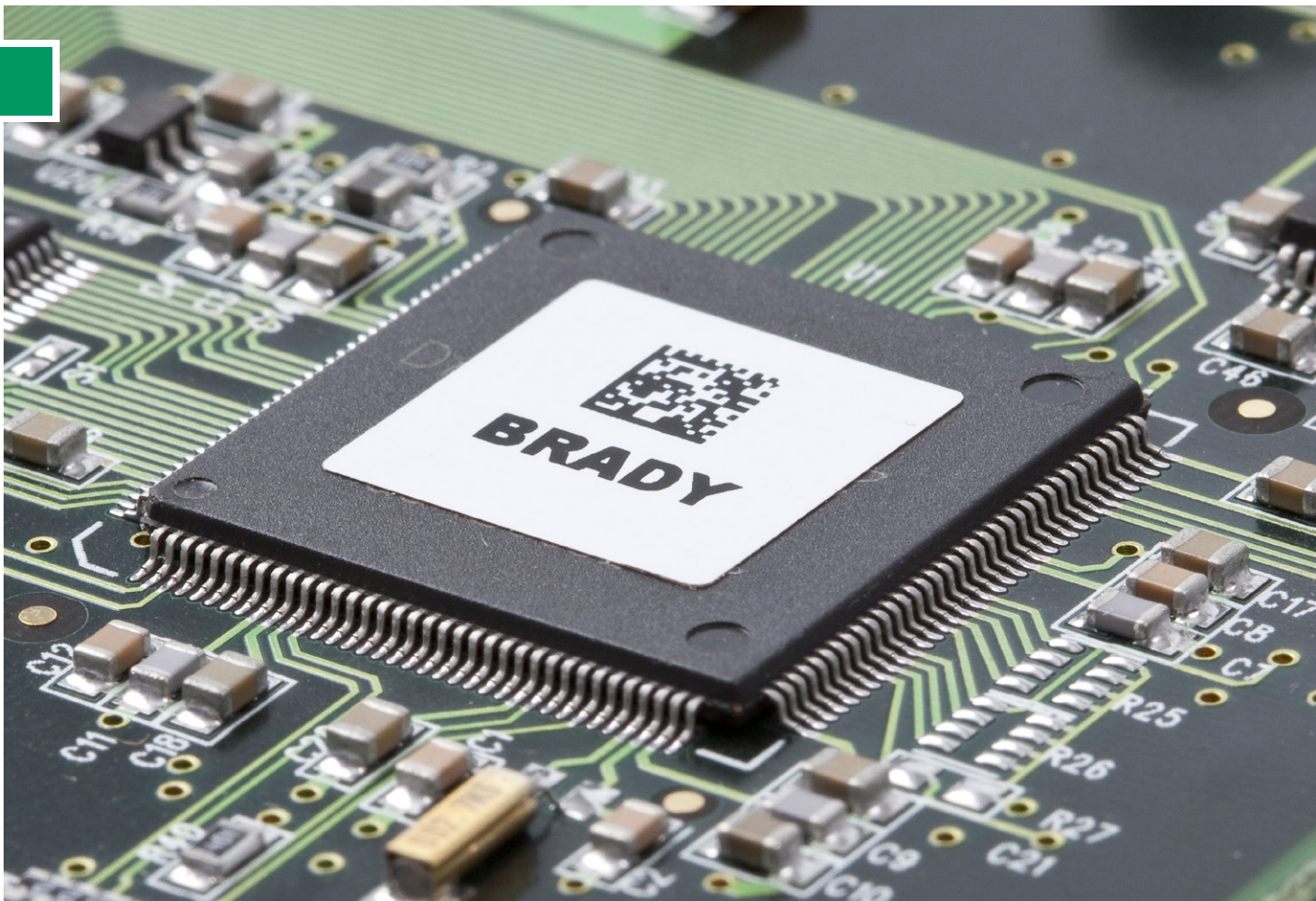


# Component Identification

Brady's quality component identification offer includes Printed Circuit Board labels and Passenger Coach Labels, with or without RFID-technology, that are printable on-site. Our metal nameplate alternative renders riveting heavy nameplates obsolete. Brady also offers Print and Protect Labels, able to resist extremely aggressive environments both inside and outside any rail vehicle.

All component identification solutions have been tested in Brady laboratories using standard test methods.

For more information on identification solutions, please visit [www.bradyeurope.com](http://www.bradyeurope.com).



# Printed Circuit Board Identification

## Product

Brady UltraTemp™ Series High Heat Labels can withstand temperatures and harsh cleaning processes used in printed circuit board assembly, equipment and component manufacturing. Brady UltraTemp™ Series label materials are rigorously tested for heat, chemical and abrasion resistance to ensure optimal performance in reflow, wave solder and board washing processes.

## Use

Brady UltraTemp High Heat Labels are ideal to track and trace printed circuit boards and electronic components throughout the manufacturing process. UltraTemp High Heat Labels can be used with auto-apply equipment.







# Engraved Nameplate Alternative

## Product

B-7593 is a printable and durable polyester material with a compressible foam carrier and a permanent acrylic adhesive which adheres well to rough surfaces.

B-7593 is halogen free and has good diesel and chemical resistance.

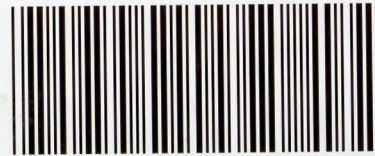
## Use

B-7593 can serve as an alternative to metal nameplates without the need for drilling or riveting into the subsurface. This time saving solution can be used both indoor and outdoor to identify switches, instrument panels and much more. B-7593 can be printed on-site, when and where you need it.

In-depth technical information can be consulted at [www.bradyeurope.com/tds](http://www.bradyeurope.com/tds)



 **BRADY**<sup>®</sup>  
WHEN PERFORMANCE MATTERS MOST™



# Strong Adhesive Labels

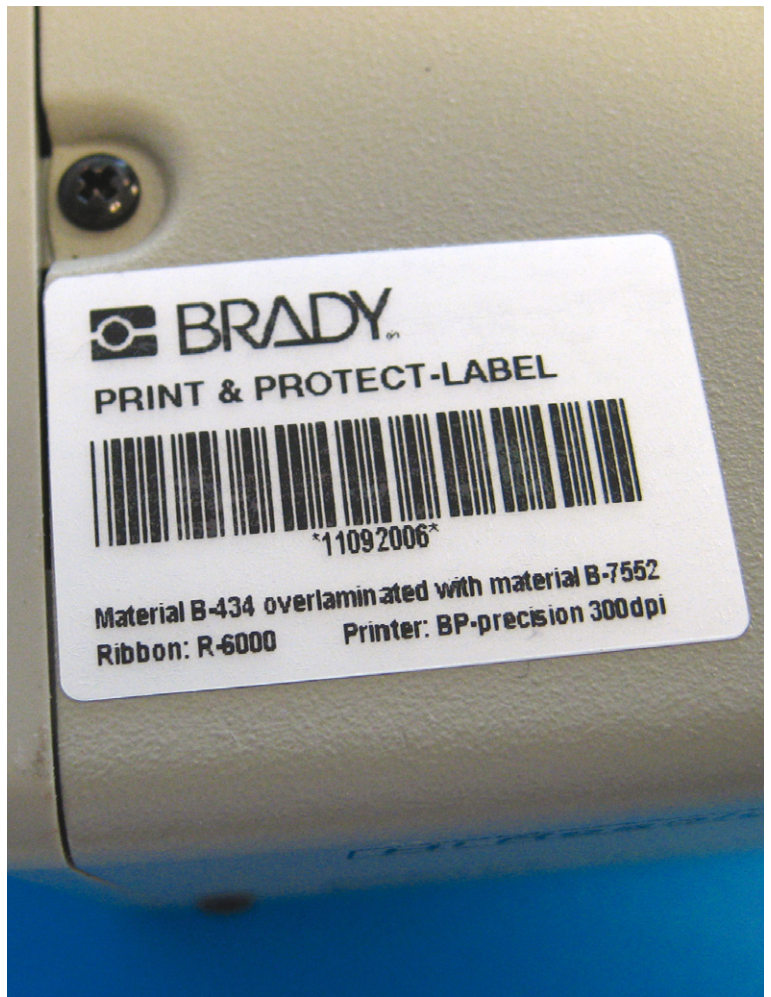
## Product

Brady's ToughBond™ Series Aggressive Adhesive Labels offer permanent identification and outstanding adhesion that is up to three times higher than standard adhesives, without the need for extensive cleaning or surface preparation.

## Use

ToughBond™ Series labels provide traceability options for components with the roughest of surfaces. They can even be used on the electronic racks in every coach. When all components can be tracked and traced, a potential quality issue can be addressed quickly and efficiently.





# Print and Protect Labels\*

## Product

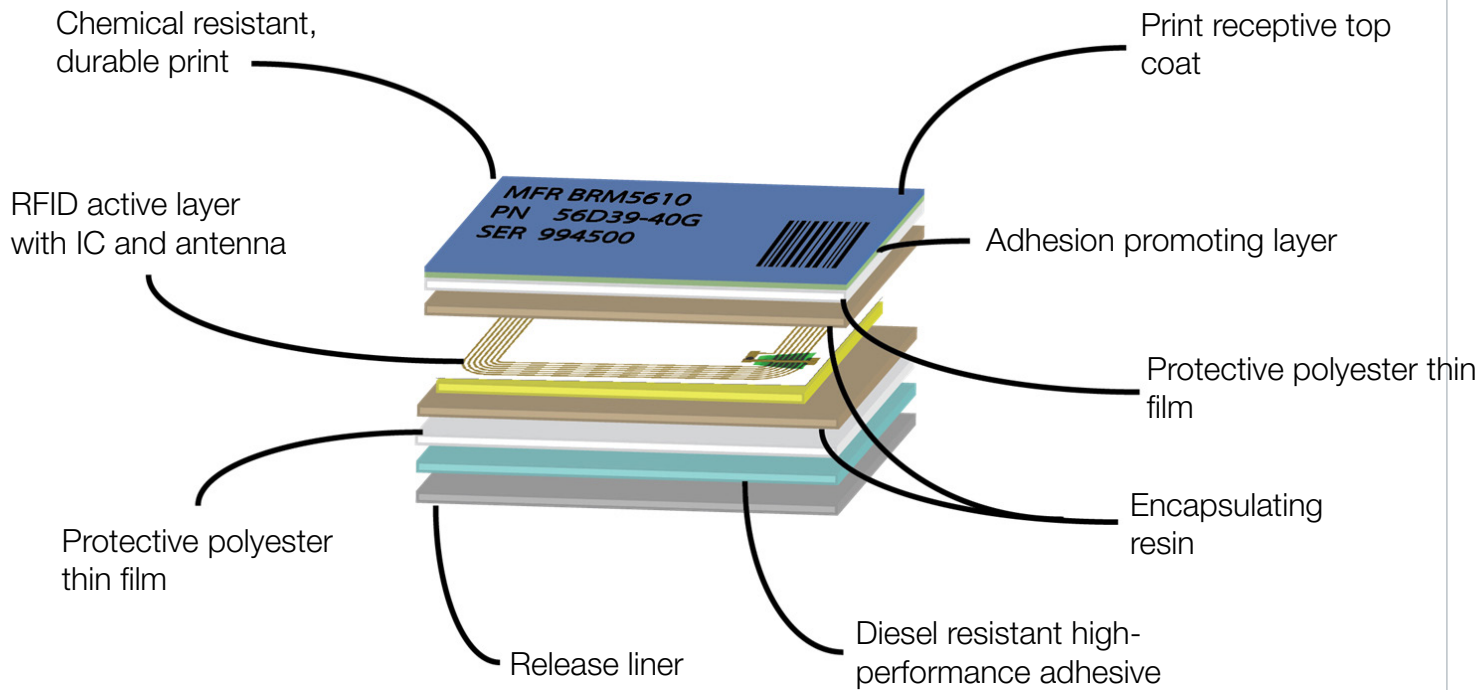
Brady's Print & Protect label materials are a unique combination of both a label and an over-laminate on one liner. The combination of label and over-laminate provides superior durability and chemical resistance, protecting the print against abrasion, chemicals and UV-exposure.

## Use

Print and Protect Labels are suitable for almost all applications where the highest demand on durability and/or chemical resistance is required. These labels can be used in very aggressive environments, like on the outside of locomotives or rolling stock.

\*not available in Germany





# RFID Labels

## Product

An RFID active layer can be built into any label with a protective layer, printable topcoat and specialised adhesive to suit the needs of different contexts in any rail vehicle. A specialised label liner prevents electrostatic shock from damaging circuitry during application.

## Use

RFID technology enables users to automate a rail vehicle's inventory check. After performing a scan, RFID labels send back information to your database, showing which components are missing, or no longer present in sufficient numbers. RFID technology is always used in combination with component labels.



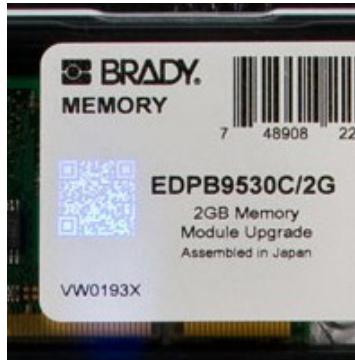
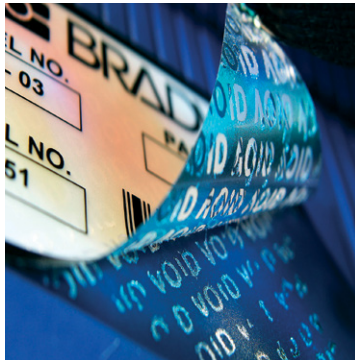
# Printing Solutions

## Product

Professional Brady printers enable on-site and on demand printing of even highly specialised component labels. Partnered with extremely customisable software, adaptable to specific processes or data file formats, our printers support considerable gain in production time and flexibility. Brady offers both mobile and benchtop component identification printers.

## Use

Once set-up, these solutions enable printing of interior and exterior identification, directly from the manufacturing database. The printing solution will even cut labels to size according to specifications. On-site identification printing capabilities eliminate the need to store every single label.





# Brand Protection Solutions

Counterfeit products and parts are an increasingly serious global threat. Brady offers an array of industry-leading authentication, tracking and tamper indicating technologies, and we're continually developing new advancements for the future. We can work closely with you to select the right technologies for your needs, and develop a long term protection plan to make sure you're prepared for the challenges ahead.

For more information on identification solutions, please visit [www.bradyeurope.com](http://www.bradyeurope.com).



# Tamper Indicating Technologies

## Product

Tamper Indicating Technologies range from footprinting labels, that leave behind a footprint on the product and the label surface, to tamper indicating packaging sealing and cleanly removable tamper labels. Also available are specialised coatings and inks showing product tampering with the aid of heat, chemicals or water.

## Use

Tamper Indicating Technologies help deter and provide visible evidence of label switching, reuse of product packaging, unauthorised service, product dilution, alteration and other forms of fraudulent activity. Tamper Indicating Technologies can be combined with authentication and tracking features to build a strong multi-layered anti-counterfeiting and anti-tampering solution.





# Digital Authentication, Tracking and Analytics

## Product

Digital Authentication, Tracking and Analytics is a cloud based solution where a unique non-predictable, non-repeatable, encrypted serial number and/or 2D barcode is assigned to a product or part at unit level in order to track them through the supply chain. Using standard mobile smartphones, SMS messaging or a PC with internet access, anyone anywhere in the supply chain can verify and authenticate products and/or parts.

## Use

Security labels and seals with encrypted serialisation and barcodes offer cost-effective identification, authentication, traceability and business intelligence. The analytics from the system provide a brand owner visibility into all authentication attempts, helping identify where and how much counterfeit activity might be occurring. In addition, the analytics will highlight potential illegal diversion (grey market), assist with product return management and strengthen supply chain loyalty and confidence by empowering anyone involved with real-time product verification capability.





# Overt Technologies

## Product

Overt Brand Protection Technologies range from embossed optical films, shifting colour at different viewing angles, to sophisticated holographic devices, microstructures, colour shifting inks and high resolution printing that is difficult to copy with publicly available printers.

## Use

Overt Brand Protection Technologies are clearly visible and can be authenticated without the need for special tools and equipment. They are used both as a deterrent and when it's impractical to provide an authentication tool/equipment to all those involved in the authentication process. All of these technologies can be combined with other security features to build an even stronger multi-layered anti-counterfeiting solution.



# Covert Technologies

## Product

Covert Brand Protection Technologies cannot be authenticated without tools. Products range from microscopic chemical markers and light polarising security inks to covert barcodes, serialisation and micro & nano imaging. Covert features can often be integrated into a label design without interfering with the overall functional purpose of the label.

## Use

Covert Brand Protection Technologies keep your anti-counterfeiting and piracy protection confidential. They can be authenticated through a variety of methods, ranging from simple tools like smart phones, flash lights and magnifiers, to advanced laboratory analysis equipment. These technologies can be combined to allow multi-layered anti-counterfeiting solutions.







# Sealbags (spare parts)

## Product

A Transposafe Sealbag® is a security envelope made from polyethylene. The bag's integrated security seals prevent reopening without leaving traces, securing its content and the supply chain. Every Sealbag has a unique number, barcode and/or RFID tag. A Sealbag is the ideal combination of high security, solid packaging and complete supply chain information.

## Use

In rail vehicle manufacturing, Sealbags can be used to secure the spare parts supply chain. For urgent maintenance, several spare parts could be sent to a repair site. When repairs are finished, non-used spare parts are sent back to stock. Sealbags can facilitate this procedure by guaranteeing returned part's authenticity, saving time and money.



# Safety & Facility Identification

Brady offers a wide range of Workplace Safety & Facility Identification Solutions.

Brady's safety identification products help to save lives and reduce the cost of accidents. Available are a wide range of durable safety products that can be tailored to a customer's needs and specific context. Brady also offers hands-on training for each product when required.

Brady's facility identification products help sustain lean initiatives through the Visual Workplace, where critical information is displayed right at the point of need. This ensures that best practices remain clearly visible, readily understood and consistently adhered to, even long after the rapid improvement event is over.

For more information on identification solutions, please visit [www.bradyeurope.com](http://www.bradyeurope.com).



# Safety Signs

## Product

Brady offers both ready-made and printable safety signs to help you comply with EU-wide and national regulations. Brady safety signs can be printed on a great number of durable materials, aimed at maximising durability and visibility in any context. Next to a large stock offer, we can create any safety sign based on your specifications.

## Use

Brady offers all safety signs on various materials for production halls, offices, inside trains or outside environments. Depending on the context, Brady will offer specialty adhesives, printing techniques and sign protection to maximise durability and legibility of your safety signs.





# Spill Control

## Product

Brady offers advanced Meltblown Polypropylene Spill Control both to combat and prevent the spread of oil, chemical or water-based spills. Advanced Polypropylene Spill Control products are incredibly fast to deploy, adsorb the spill and be disposed of. They adsorb 10-25 times their own weight in fluids. The total cost of use, including disposal, is much cheaper compared to traditional granules. Polypropylene spill control products are adaptable to various contexts and exist as pads, wipes, rolls, booms, SOC's, pillows, rugs & mats.

## Use

Brady spill control products are easy, comfortable and clean to use, making them ideal to quickly wipe down tools or clean a work table. They can even be used preventively because they are not obtrusive, unlike granular products. By placing a polypropylene mat underneath machinery prone to leaks, spills can be controlled before they cause slips and falls or otherwise limit productivity.



# Visual Lockout/Tagout

## Product

Lockout/Tagout is a written safety procedure which involves the isolation and inoperability of the energy supply of industrial machinery during maintenance. The procedure includes prescribed Lockout/Tagout operating sequences for each machine and a definition of roles and responsibilities. It also involves an investment in padlocks dedicated devices to block energy sources in the “off”-position and key charts for specific environment.

Brady can deliver quality Lockout/Tagout products and offers expertise and dedicated software to help create a highly visual Lockout/Tagout procedure.

## Use

Lockout/Tagout is used to prevent injuries such as fractures, lacerations, amputations, burns and shocks. Brady will visualise your procedure at every energy isolation point with colour coded energy source tags showing life saving steps for energy lockout. These will support employees to quickly apply lockout devices needed to lockout all relevant energy sources, and to lock these into place with their personal padlocks.







# Lean/5S/Workplace Identification

## Product

Brady offers a range of identification and marking products to visually organise your workplace in order to increase efficiency and to support a lean or 5S approach to manufacturing. Brady's workplace identification is exceptionally durable, easy to apply and highly visible. It's available in various colours to support colour coding for various functions in your facilities, enabling employees to quickly find areas and equipment they require.

## Use

Lean/5S/Workplace identification can be used to mark warehouse sections, racks, loading docks, forklift areas, traffic lanes and safe walking areas, bin and tool locations, operating areas for machinery or even parking areas. Brady offers various materials for workplace identification, including permanent and removable products.



# Visual Tagging

## Product

Visual Tagging clearly communicates the latest equipment inspection and test status at the point of use. Visual Tags are specifically designed to help you comply with legislation, identify equipment, and reduce workplace accidents. A broad range of Visual Tags are available for Working at Height, Plant, Vehicles & Tools, Workspace Control and Process & Pipelines.

Composed of a 2 part holder and insert system, the insert shows the equipment's inspection trail up until the last inspection date. If equipment fails inspection at any point simply remove the insert from the holder to clearly display 'Do Not Use' prohibition sign.

## Use

Employees will immediately see vital safety information on the equipment they want to use, getting the information they need when and where it matters. They will refrain from using faulty or worn equipment that didn't pass inspection. Brady offers customisation options for visual tagging holders and inserts, including fully customisable size & shape, displayed data, design and attachment possibilities.



# Printing Solutions

## Product

Professional Brady printers enable industries to print on-site and on demand even highly specialised safety signage. Partnered with user friendly and intuitive software, adaptable to specific processes or formats, our printers support considerable gain in production time and flexibility. Brady offers both mobile and benchtop printers, able to create compliant safety signage.

## Use

Once set-up, these solutions enable printing of interior and exterior safety identification, directly from the manufacturing database if needed. Some printing solutions will even cut labels to size according to specifications. On-site identification printing capabilities eliminate the need to store every single safety sign you might need.



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