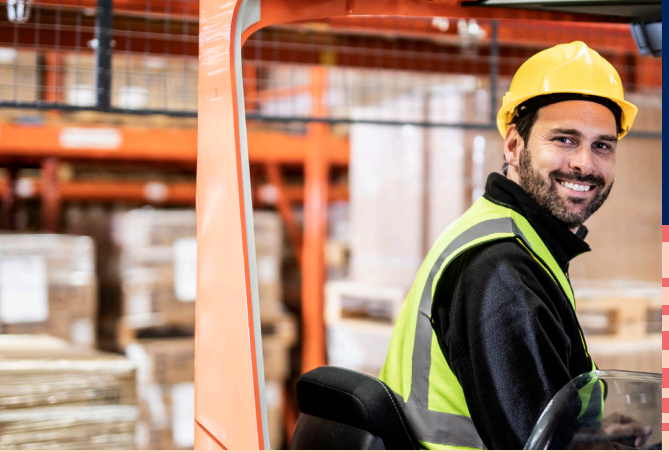
brother
at your side

Your guide to

sustainable warehousing

Taking a green approach to modern logistics

Contents



1

What is sustainable warehousing?

In 2024, 2.71bn people are expected to shop online, a figure up from 2.37bn people in 2023. As a result, more and more new warehouses are emerging to cater to this ecommerce boom.

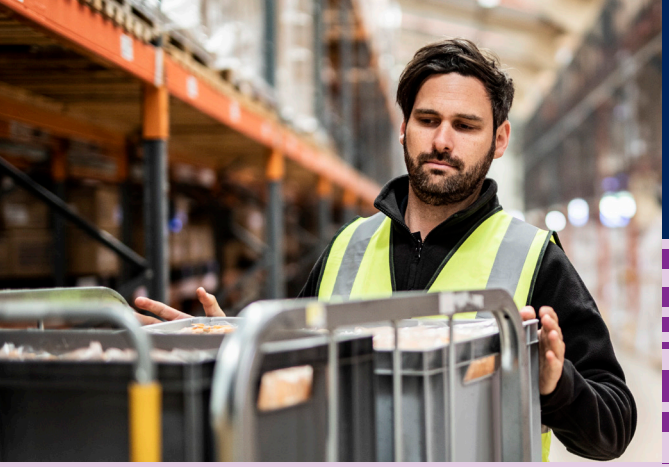
The problem with this is that global warehousing activities are estimated to contribute up to 11% of the total greenhouse gas emissions of the logistics sector[1]. Resultingly, warehouses are under growing pressure to move towards sustainable processes. Additionally, businesses operating in the EU also fall under new stringent environmental regulations.

That's why, in this guide, we'll be discussing how businesses can adopt more sustainable processes and remain compliant with regulations. However, as any business that is implementing sustainable warehousing will know, sustainability is not a destination. As such, sustainable warehousing can be more accurately thought of as a journey.

This means sustainable warehousing can be as big as reworking an entire warehouse structure and as simple as switching to LED lights or Auto ID labelling. As long as local regulations are being met along the way, there's really no one-size-fits-all approach to sustainable warehousing.

So, in this eBook, we'll be taking you on a journey to understanding the meaning and impact of sustainability in warehousing. This will help you envision what a sustainable warehouse looks like for your business and introduce some quick wins that can be achieved even on a budget.

Thinking of sustainability as a destination minimises the impact of the small, incremental changes required to get there. And the truth is, those small incremental changes to improve a warehouse's operations at different levels are sustainability in action.



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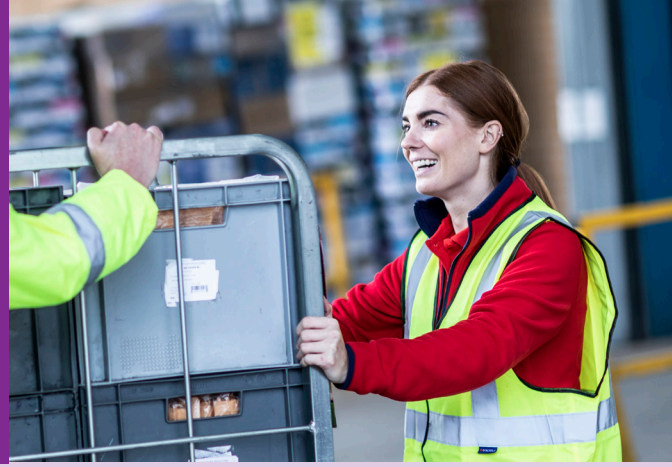
The benefits of sustainable warehousing



Seeing sustainability as a destination can make it seem like sustainability is one huge task that's going to require a lot of resources to achieve. In addition to a general lack of awareness, tight budgeting, and other economic priorities, businesses can put off making changes because the overall task seems too overwhelming.

But going green isn't just about limiting environmental damage; making sustainable choices can have several benefits for warehouse businesses.

Improve employee loyalty

CSR and organisational citizenship behaviour have been found to contribute to employee loyalty due to increasing identification with a firm[4].

Reduce operational costs

As many green practices centre on improving efficiency and reducing waste, sustainability can lead to cost savings, such as those made by Amazon by running its data centres on renewable energy[5].

Ensure regulatory compliance

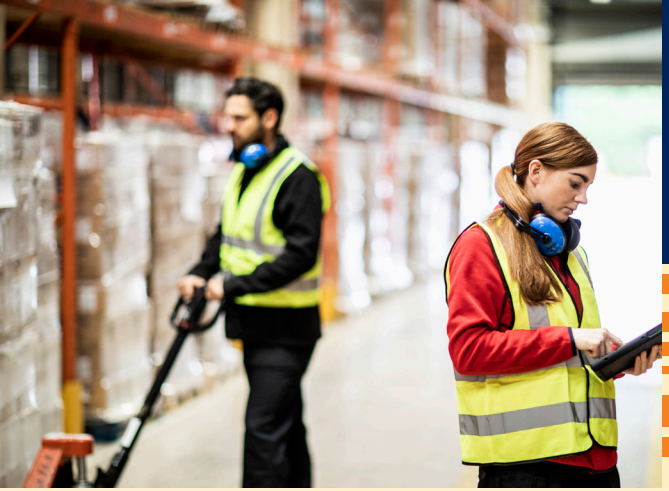
By adhering to waste management protocol and reducing carbon emissions in their operations, businesses can ensure they remain compliant with their local government's environmental regulations.

Enhance your corporate reputation

When sustainability is included in corporate strategy, it has been found to enhance the corporate reputation, create value, protect against difficulties and liabilities, and maximise business survival[2].

Improve sales

55% of customers consider the sustainability practices of a brand they support when making a purchase[3]. As such, corporate social responsibility (CSR) has been found to improve sales[4].



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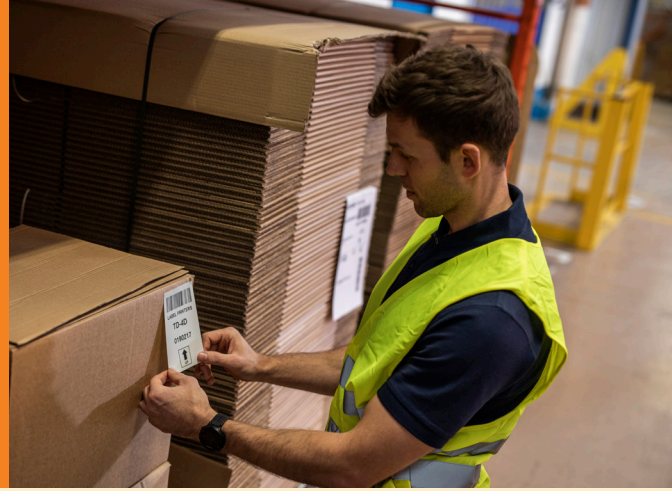
Sustainable warehousing trends and how to implement them



All businesses (except micro-enterprises) operating in the EU are required to adhere to a series of environmental regulations. These include reporting the company's impacts on sustainability matters and how sustainability matters affect the company's development, performance, and position[6].

This initiative was introduced at the beginning of 2023 and requires businesses to ensure that stakeholders and investors have access to the information they need to assess the impact of a company on people and the environment, and any financial risks and opportunities associated with climate change and sustainability[7].

But what trends do businesses operating in Europe need to be aware of when implementing a sustainable warehouse? Over the next few pages, we'll be discussing:

1

Energy efficiency

To explore some small steps businesses can take to become more energy efficient, increase profitability, and boost productivity.

2

Reduce, reuse, recycle

To explain how businesses can reduce waste in their warehouse operations and save costs in the process.

3

Smart technology

To explore the technological innovations that can enable businesses to work smarter, not harder.

4

Sustainable transportation

To give businesses our top tips for playing their part in reducing global carbon dioxide emissions.

1 Energy efficiency

Using energy more efficiently is one of the fastest, most cost-effective ways to save costs (by lowering bills) and reduce emissions from buildings (which account for 40% of global energy consumption)[8].

As a result, improving your business' energy efficiency could increase profitability, protect your business against potential future energy price increases by converting to renewable energy, and even boost productivity with better technology.

So, how can businesses achieve energy efficiency? Well, the good news is that doing so doesn't require monumental changes. Instead, here are some small steps your business can take to become more energy efficient:

Upgrade your lighting

Energy-efficient LED lighting is less expensive and has a longer lifespan than traditional lighting. In fact, moving to LED lighting typically reduces electricity costs by up to 70%[9]!

Use energy-efficient equipment

Invest in energy-efficient warehouse equipment, including electric or lithium-ion forklifts, conveyor systems, label printers, and packaging machinery. Not only do these forms of equipment tend to take up less space, but they also create a better working environment - reducing noise and using considerably less energy, contributing towards business sustainability goals.

Use renewable energy

If you have renewable energy sources available to choose, consider using them to power your warehouse. Renewable sources for warehouses can include solar panels and small wind turbines located on the property.

2 Reduce, reuse, recycle

Warehouses generate a significant amount of waste[10], including cardboard, plastics, metals, and packaging materials. In fact, from 2010 to 2021, 'paper and cardboard' was the main packaging waste material in western Europe (34.0 million tonnes in 2021), followed by plastic (16.1 million tonnes) and glass packaging waste (15.6 million tonnes)[11].

Not only is this waste bad for your business' bottom line but the majority of plastic waste ends up in our natural environments, polluting the ocean, threatening wildlife, and posing risks to human health[12]. In addition, the plastic waste that ends up in landfill gets incinerated, causing toxic pollutants and irritants to be released into the air we breathe[12].

So, here are our top tips for waste reduction and management: But going green isn't just about limiting environmental damage; making sustainable choices can have several benefits for warehouse businesses.

Implement a recycling programme

Instead of sending packaging waste to landfill, implement a comprehensive recycling program in your warehouse for paper, cardboard, plastics, metals, and electronics. You should consider the packaging materials your warehouses use and look into recyclable and compostable materials. For example, using toner cartridges from a supplier like Brother who can assist in recycling them.

You can also use this as an opportunity to indicate to your customers the measures you're taking to implement sustainability by providing tips as to how they can reuse packaging.

Try remanufacturing

The purpose of remanufacturing is to make the product as good as new so that, for all intents and purposes, the customer is getting the same quality product as before. As such, remanufacturing is much more efficient than recycling materials. This is not, however, the same as selling products second hand. Of course, this process still requires some new parts as not every part of an old product will work as well as it did before. However, remanufacturing drastically reduces the need for new materials.

For example, at Brother we collect waste toner cartridges and remanufacture or recycle them to make new ones, with nothing going to landfill. Our cartridges go through a fully circular process, and our plastics don't contain any hazardous additives meaning we can remanufacture them over and over again.

Source reduction

Source reduction means stopping waste at the source by eliminating waste before it's created[13]. As a result, by implementing both of the processes above and by working with suppliers to reduce excessive packaging and encourage responsible sourcing, you can work towards source reduction, eliminate wasteful practices, improve efficiency, and save costs[14].

Green logistics

Incorporating sustainability into supply chains is incomplete without addressing the issue of waste generated by the logistics industry. This can be accomplished by reducing the use of plastic packaging, including opting for linerless labels, or transitioning to biodegradable alternatives, such as paper containers and tapes, wooden pallets, and recycled plastic.

3 Smart technology

The development of sustainable business cannot be extricated from the use of smart technology. For all industries, sustainability has been boosted by innovation in data generation and analytics, artificial intelligence (AI) and advanced robotics, as well as cloud computing[15]. In warehousing, these technologies can be used to optimise anything from inventory management to energy efficiency.

So, which tools do you need for a smarter, greener warehouse?

Industry 4.0 technologies

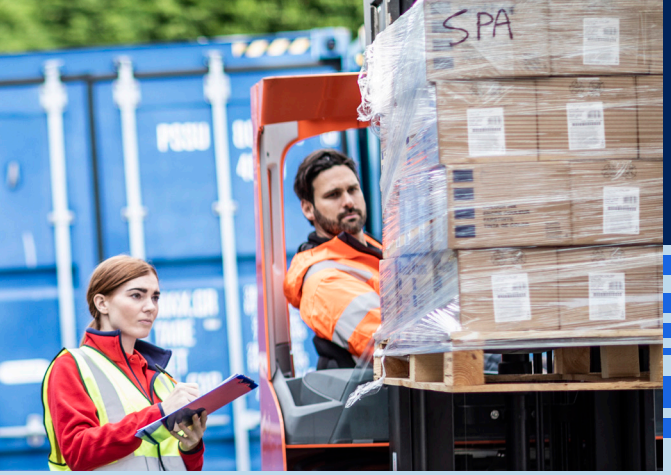
Industry 4.0 technologies include innovations and products that are interconnected, such as the Internet of Things (IoT), Industrial Internet of Things (IIoT), artificial intelligence (AI), and robotics. By monitoring energy usage, optimising inventory management, and reducing waste, these technologies can be used to optimise warehouse operations, reduce energy consumption, and improve productivity.

Automation

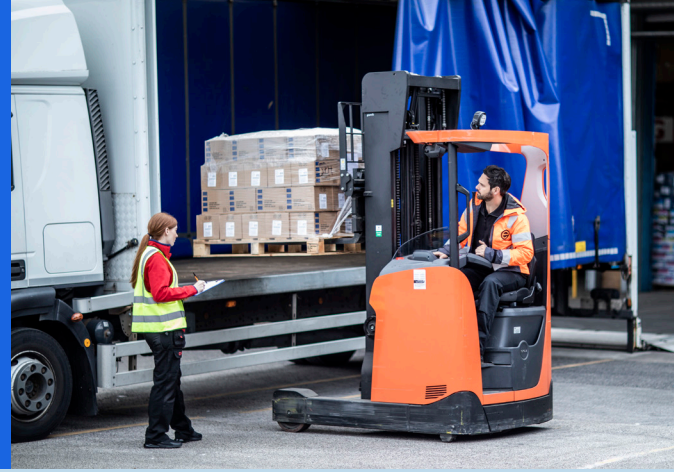
As automation is much more resource and energy light than manual processes, it can contribute to sustainability goals in a number of ways. For example, automated planning, auto ID labelling, and management and control systems can help to optimise your warehouse's layout, minimise energy consumption, and reduce wastage[16].

Warehouse simulation

Warehouse simulation software generates a virtual simulation of a logistics facility. It enables businesses to execute various tests to determine the warehouse's maximum performance in specific scenarios, such as increased order quantities[17]. Together with a Warehouse Management System (WMS), a software solution that provides visibility into a business' inventory and manages supply chain fulfilment operations[19], warehouse simulation can help to increase efficiency and productivity and thereby reduce energy consumption[18].



4 Sustainable transportation



As the transport and logistics industry grows, so does the industry's environmental impact. As such, the logistics industry currently accounts for approximately 25% of global carbon dioxide emissions[20].

And if drastic measures aren't taken to reduce this impact, the European Environment Agency predicts this share could potentially increase to 40% by 2050. The Paris Agreement states that CO2 emissions need to be cut 45% by 2030. As a result, the transport and logistics industry need to cut the number of emissions it produces, and soon. So, here are our tips for greener transport in the logistics industry.

Efficient routes

Using automated route planning software, you can optimise your fleet's transportation routes to minimise fuel consumption and reduce emissions. Fleet management software can also help you track and reduce empty miles and increase transportation efficiency.

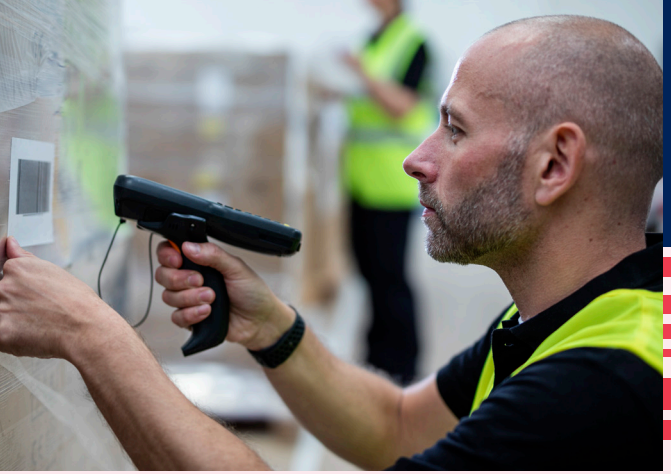
Alternative fuels

Both within the warehouse and outside, you can switch to using vehicles powered by alternative fuels. For example, using electric vehicles or natural gas.

Smarter inventory management

About 25% of all returned products end up in landfill[26]. However, by using a warehouse management system to implement smarter inventory management, you can automate processes to improve order accuracy and optimise recycling of returned products to reduce this percentage.

The logistics industry currently accounts for approximately 25% of global carbon dioxide emissions[20]



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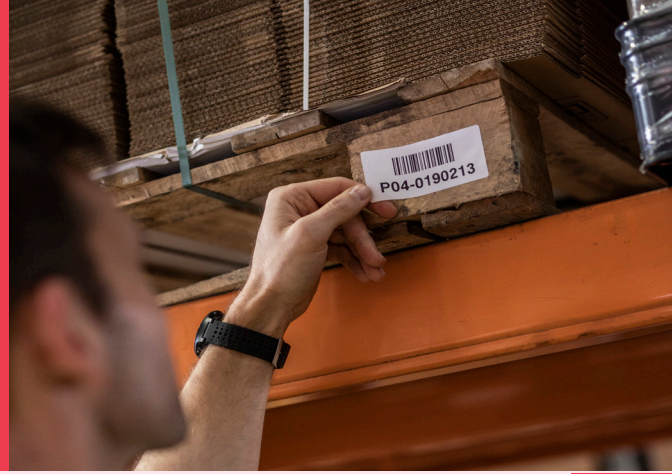
Planning a sustainable warehouse



Joining the journey towards greener warehousing can result in cost savings and significant boosts in efficiency, but there are also risks associated with inaction – such as carbon taxes[21]. So, here are three easy steps to get started:

1 Set goals

Define clear sustainability goals for your warehouse using established frameworks such as the UN Sustainable Development Goals[22]. These goals should be SMART[22]:

- Specifc
- Measurable
- Achieveable
- Relevant
- Time-bound

For example, to cut x% of emissions in a specific timeframe.

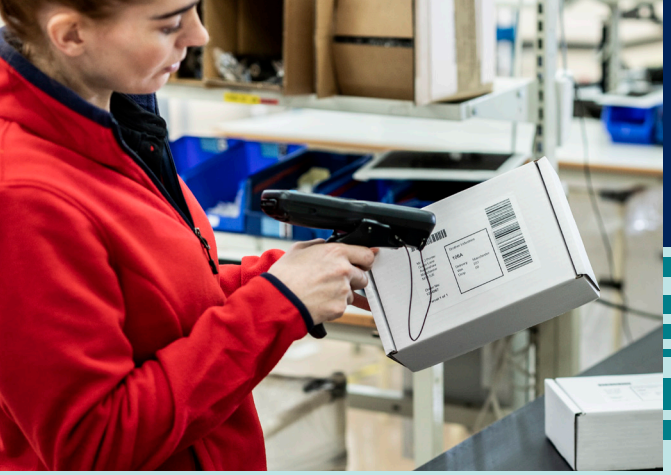
2 Allocate budget

If you don't budget for sustainability, you're unlikely to follow through on your plans because it will never be the "right time" to spend money in that area. For example, on remanufacturing or on smart technology such as Auto ID labelling. However, there are clear returns to be had on making an initial investment. So, to ensure you put your plans into action, develop a sustainability budget with the involvement of different stakeholders. To ensure you address the right issues at the right time, you should prioritise assessing which areas are the weakest in your warehouse and which are not compliant with regulations.

3 Start small

The biggest wins on a low budget come from:

- Being stricter with your recycling practices.
- Making modifications to your lighting system.
- Upgrading the warehouse equipment that consumes the most energy.
- Identifying any inefficiencies in workflow management.
- Transitioning to smarter solutions for essential things like printing and labelling.



6 The role of labelling in sustainable warehousing

Label printing plays a vital role in every warehouse. Though it's often overlooked, it can be key for improving sustainability processes. This is because few warehouse managers take into account the costs associated with label printing, including downtime, shipping delays or errors, product recalls, and inventory overheads. To highlight this issue, we undertook a survey of UK businesses and found that:

76%

had experienced rejected deliveries due to barcodes that couldn't be read[23]

59%

said poor quality label printing costs their business between a week to over a month per year[23]

75%

had to re-send goods[23]

42%

stated poor labelling costs them up to €1,160 (equivalent to five desktop printers per year)[23]

Not only are warehouses paying unnecessarily high costs by not streamlining their labelling processes but, additionally, few warehouse managers consider the impact of poor labelling on sustainable processes. While the role of labelling in sustainability is often overlooked, there are several ways that better labelling can be used to support sustainable warehousing. Here are a few:

Inventory management

Sustainable inventory management can be used to reduce the amount of inventory used, reuse materials, recycle waste, and recover resources from waste, thereby reducing the environmental impact of your warehouse.

Product identification and compliance

Labels provide essential product information and traceability, simplifying picking and packing. As a result, having accurate, readable labels is essential for reducing waste and facilitating compliance with industry regulations and standards.

Order fulfilment and traceability

Accurate label printing also reduces errors, improves customer satisfaction, and reduces returns. Meaning your warehouse can improve customer loyalty, reduce costs, and boost efficiency.

6

Four sustainable innovations in label printing

1 Quality thermal printers

11% of label materials from label stock to final application are wasted, due to causes such as errors or stock obsolescence. Switching to on-demand thermal label printers can eliminate waste like this by only printing labels as they are needed. Plus, durable thermal label printers offer rapid print speeds, large ribbon capacity, and in-built durability, meaning they can provide huge energy savings in industrial settings.

2 Integrated labelling

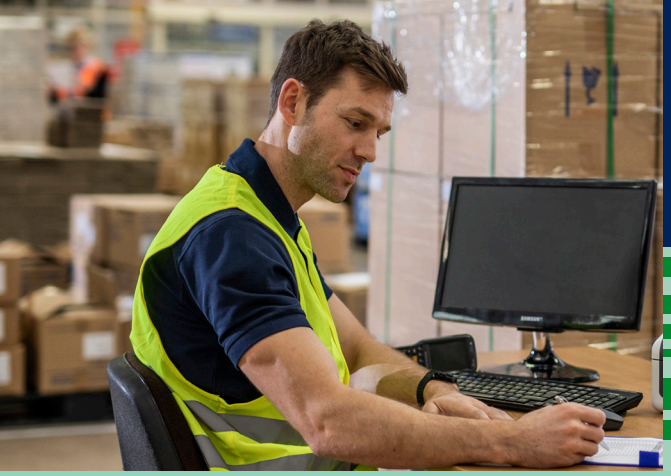
With an integrated solution you can make all your systems talk to each other in order to automate your warehouse's processes – including labelling. By doing so, you can hugely improve your inventory management, reduce errors and speed up the order process, promoting consumer loyalty and sustainability in one go.

3 Linerless technology

Traditional label printing involves the use of label stock with backing material (liner). Linerless labels, as the name suggests, do not require this liner, meaning 40% more labels can fit on a roll. As a result, linerless labels are a more cost effective, less wasteful option and are also more efficient as they require less roll changes. Plus, they make it easier to recycle and reduce resources and waste.

4 Smart labels

Smart labels use technology to provide more information or functionality than a traditional barcode. These include QR codes, data embedded barcodes, and RFID. As a result, they can contribute to sustainability by engaging with consumers about the origin and shelf-life of the product, meaning the product is used more effectively and less waste is produced.



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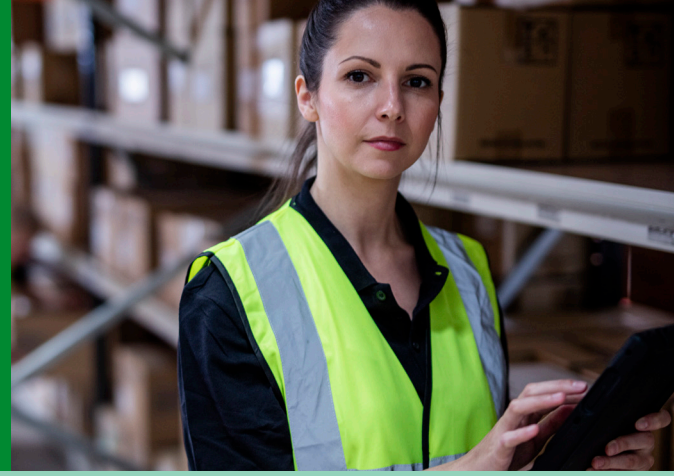
Join the journey to sustainability



The environment is everyone's responsibility. As the impact of the warehouse and logistics industry on the environment continues to grow, it is the industry and its partners' responsibilities to take action.

In addition, as we've seen, doing so can come with enormous benefits, from increasing efficiency to reducing costs, improving your company's reputation, and maintaining regulatory compliance.

As the main labelling partner to the warehouse and logistics industry, we are committed to supporting sustainable business practices. That's why at Brother, we live for the label. So you don't have to.

But what does that mean, exactly? By going carbon free...

We're committed to labelling innovation

Labelling innovation is key to providing sustainable labelling solutions that produce less waste and enable better warehouse management, such as linerless labels, integrated labelling solutions, and quality thermal printers.

We're committed to the circular economy

A circular economy moves away from the take-make-waste model and looks at how waste can be reduced through reduced use of resources, extended lifetime, reuse, remanufacturing and recycling.

We're committed to actively reducing our CO2 emissions

At Brother, we're working to actively reduce our CO2 emissions for the entire value chain by going carbon free, encouraging resource recycling, and contributing to conservation efforts.

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Want to find out more about how we can support your warehouse on the journey to a sustainable future? Talk to Brother's printing experts today to find out which of our products are right for your business' needs.

brother.co.uk/lets-talk-labels

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