



four ways to improve
safety in the loading
bay with automation

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introduction

The warehouse and logistics industry operates under strict health and safety regulations. Even still, every year, thousands of employees are involved in an accident in the workplace or experience work-related injuries and ill health.

The human cost can be devastating. And even if your business isn't found at fault, workplace-related injuries and accidents are incredibly damaging. There are high costs associated with:

- Legal expenses
- Compensation payouts
- Replacing or repairing damaged equipment and property
- Sick leave payments
- Employee cover
- Investigative actions and corrective measures

And it's not only the direct financial repercussions to consider. Reputation, team morale, and productivity can all be severely impacted. At a time of endemic staff shortages², no company can afford to lose experienced employees due to illness, injury or low morale.

KEY TRANSPORTATION AND STORAGE STATISTICS IN GREAT BRITAIN, 2023¹

- 55,000 workers suffer from work-related health issue:
 - 36% have musculoskeletal disorders
 - 30% experience stress, depression or anxiety
- 29,000 workers injured
- 15 workers fatally injured
- £1 billion total cost of workplace injury and ill health
- 2 million working days lost each year:
 - 21% due to workplace injury
 - 79% due to work-related illness

**YOUR BUSINESS IS UNDOUBTEDLY
COMMITTED TO SAFETY,
SO WHAT ELSE CAN YOU DO TO
PROTECT EMPLOYEES?**

¹ <https://www.hse.gov.uk/Statistics/assets/docs/transportation.pdf>

² <https://www.newswire.com/news/new-report-shows-warehouses-expect-a-return-to-normalcy-after-22007705>

identifying areas of risk

With so many factors influencing the warehouse environment right now which are out of their control, it's just too dangerous for businesses to assume that regulatory compliance is enough to protect their employees and their profitability. Oftentimes, the passing of a new regulation is reactive and in response to an accident after it has happened. Meeting those regulations is a legal requirement and needs to be considered the starting point, not the end goal.

Businesses must constantly be on the lookout for new risks, and for new ways to improve and implement better working practices. With a high percentage of accidents happening in or around the loading bay, this is one of the most dangerous areas for businesses to address first.

It is easy to see why loading areas present so many significant risks which require careful management. Differing specifications for docks and vehicles, visiting drivers and the lack of direct communication between drivers and warehouse staff all contribute to potential problems. Add in the challenges created by manual handling, often of heavy and dangerous items, the operation of forklift trucks, the reversing of vehicles and the

need to segregate vehicles from pedestrians and the loading dock should be a priority area for any logistics business.

In the following pages, we look at the factors that could be undermining your safety standards in the loading area right now and outline four ways that automation can be transformational.

SAFETY RISKS WITHIN THE LOADING BAY ARE BOTH PHYSICAL AND MENTAL

- Fast-moving forklift trucks operate alongside a pedestrian workforce.
- Staff must manually handle heavy, awkward and potentially hazardous loads.
- Constant noise associated with delivery lorries, forklift trucks and moving goods can create mental stress and risk miscommunication.
- Space is often at a premium, forcing workers to operate in close confines, which adds to the risk of accidents.
- Deadline pressures can lead to mistakes, such as vehicle drive-aways before the area is cleared.

step 1: avoid manual handling

Balancing escalating operational demands with safeguarding staff is tough, especially in highly manual environments: in the transportation and storage sector, 36% of work-related health issues are a result of musculoskeletal disorders (approximately 20,000 cases) . Areas such as loading and unloading bays are hard places to work, with employees under pressure to meet the increasingly tight deadlines required by high velocity fulfilment.

Automated loading systems radically reduce the amount of physical work required by employees. Rather than 45 minutes of highly physical activity for each trailer load, with automation the job can be completed in less than two minutes. Heavy and dangerous items can be loaded and unloaded without manual intervention, further improving employee safety and with fewer staff required for each load, a business can allocate its most experienced employees to the area.

AUTOMATING TO ERADICATE MANUAL INTERVENTION

- Automation removes the need for forklift trucks, immediately reducing the risk to employees.
- Connecting automated loading and unloading systems with other automated end-of-line solutions, such as conveyors or Automated Guided Vehicles (AGVs), further reduces the need for manual intervention.
- Automation reduces the risk of damage to goods or assets, such as forklift trucks, trailers, or the warehouse floor, which require manual repairs and downtime.
- Fewer workers and vehicles in the loading area unlocks opportunities to better optimise the space, reduce costs, and increase productivity without compromising safety.
- Highly efficient shuttle runs minimise driving miles, reducing the risks of collisions while resulting in more sustainable operations.

REPLACING TIME CONSUMING AND LABOUR-INTENSIVE MANUAL LOADING AND UNLOADING WITH AN AUTOMATED SOLUTION IS NOT ONLY FAR MORE EFFICIENT BUT PROVIDES A SAFER WORKING ENVIRONMENT

³ <https://www.hse.gov.uk/Statistics/assets/docs/transportation.pdf>

step 2:

minimise opportunities for human error

People make mistakes – and stressed workers under high pressure deadlines are at even more risk of slipping up. Within the loading area, however, mistakes can be devastating. Just consider the implications when heavy loads are incorrectly handled or dangerous items mismanaged, when pallets are not correctly secured in a trailer, when vehicle chocks are placed incorrectly, or a vehicle or trailer is moved away from the loading bay too early.

From breakages to spillages, slipped loads to vehicle creep, mistakes due to inexperience, lack of concentration or over-tiredness can create an array of potentially lethal hazards. The whole situation can be transformed by giving your staff fail safe systems that ensure the right procedures are followed at all times. This is especially important in high volume applications, where the reliance on extremely repetitive tasks increases the likelihood of incidents and accidents.

Avoid Trailer Tip

Traditional loading and unloading methods may see tractors uncoupled from trailers to make use of the equipment and labour elsewhere on the site. However, this can cause trailers to tip forward when heavy loads are

mishandled or forklift trucks are used incorrectly, leading to workers being hit by machinery or the load falling from the vehicle. As the loading and unloading process is so much quicker when automated, the need to uncouple the tractor unit from the trailer is eliminated. The trailer remains in a fixed position at all times, secure in fail-safe mechanisms. Tyre guides position the trailer exactly where it needs to be longitudinally, while the dock-lock/ dock leveller ensures it is in the correct position vertically and locked into place.

End Drive-Aways

Drivers are under enormous time pressures, especially when they have been hanging around waiting to unload. It is far from unknown for a driver to attempt to drive away before the unloading/ loading process has been completed – leading to a worker falling from the vehicle or dock. This can't happen with an automated system. If a driver mistakenly attempts to drive away without disconnecting the data cables from the trailer, the fifth wheel's lock won't open to release the trailer, preventing cables and other components in the system from being damaged.

Fail-safe systems

Providing employees with fail-safe systems is key to avoiding the human error that can have catastrophic outcomes in the loading bay. With no need to uncouple the tractor and trailer, the simple step of locking and docking – by connecting a data cable from the loading dock to the connection point on the trailer – eradicates the risks of trailer tip and drive-aways.

- The system ensures both the loading dock and the trailer work at the same time and the same speed.
- Using readings from sensor points throughout the dock, the system safely guides the pallets and ensures perfect alignment between loading bay and trailer every time.
- Adding a fifth wheel or dock leveller at the rear of the trailer locks the trailer into position. The loading system cannot be operated unless the trailer is docked correctly.

step 3: avoid collisions between vehicles and people

Pedestrians operating side by side with forklift trucks is a dangerous mix. Plus, of course, there are always trucks and trailers regularly arriving and departing outside. The average annual number of workplace injury fatalities in the UK is 124⁴. Between 2018 and 2022, 37% of deaths in the transportation and storage environment were classified as struck by moving vehicle⁵.

Businesses can immediately cut the risk of collisions between forklifts and employees by adopting automated loading and unloading procedures, as they eliminate the requirement for forklifts. They also include an array of features to protect workers from inadvertently straying into a danger zone such as the loading bay during operation. The addition of emergency stops, light guards and scanners, for example, not only ensure everyone knows when loading is underway but these safety features automatically shut off the system should members of staff come into proximity whilst in operation.

SAFETY MEASURES TO IMPLEMENT

- Safety fences can be installed around the system to ensure that no one gets too close to the mechanisms in the loading dock whilst it's in operation. An access door connected to the control panel is automatically locked while the system is in operation.
- Ladders and handrails can be used on higher docks to safeguard anyone performing maintenance and prevent workers falling off the loading dock.
- Sensors can also be connected to the loading system's computer that monitor either side of the load or the height of the load and detect any issues before they're loaded into the trailer.
- A contour pallet check of abnormal loads or a contour complete load check of the 'slug' ensures there are no issues before pallets are loaded in one shot into the trailer.
- A red-light signal will prompt the operator if any irregularities are identified that need to be corrected or rejected.

DURING THE LOADING OR UNLOADING PROCESS, THE DRIVER MUST BE PRESSING A BUTTON FOR THE SYSTEM TO WORK. THE SYSTEM WILL STOP IF THE DRIVER STOPS PRESSING THE BUTTON, WHICH MEANS THEY MUST BE PRESENT DURING THE ENTIRE PROCESS.

⁴ <https://www.hse.gov.uk/statistics/assets/docs/cost-to-britain.pdf>

⁵ <https://www.hse.gov.uk/Statistics/assets/docs/transportation.pdf>

step 4: improve staff morale and retention

Recruitment is tough everywhere, but the issue is now urgent within logistics. One recent survey found that 64% of businesses across materials handling, distribution or fulfilment had forgone business worth more than 25% of their revenue in 2022 because of staffing issues. That's despite 49% of respondents saying their businesses offered flexible schedules to attract or retain staff, and more than one-third reporting their businesses raised pay⁶.

- An influx of new recruits who are unfamiliar with the processes and risks demands lots of training hours and places added pressure on the remaining workforce to increase their productivity.
- Procedural errors are more likely which can result in accidents or create new risks.

- As labour shortages intensify, staff may feel they have to cut corners or rush, increasing falls or incidences with vehicles.

Businesses can boost retention by improving not only the safety of the environment but also the overall working experience. Embracing new technologies, such as automated loading or other end-of-line automated technologies, such as pallet picking, pallet shuttles, wrapping or AGVs, can also attract a younger generation that is actively looking to use modern technologies within the workplace. Employees who are happy or engaged in their work are far less likely to make a mistake or experience mental health problems.

⁶ <https://www.newswire.com/news/new-report-shows-warehouses-expect-a-return-to-normalcy-after-22007705>

a checklist for successful automation

1. Undertake a Risk Assessment

A comprehensive risk analysis is essential to understand the specific threats within the organisation's loading dock. Taking a walk around the space and considering what employees will be doing day-to-day can quickly highlight potential dangers. Do walkways guide workers and visitors around the space safely? Are floors kept clear? Are handrails in place? The HSE recommends a comprehensive list of questions to ask, [here](#).

Looking at any recent health and safety incidents will also highlight problems and get a better employee perspective.

- What tasks are they struggling to complete safely?
- Are the same injuries occurring frequently?

Having determined current safety issues, the next step is to introduce appropriate mechanical solutions for safety, warning signs, training, and electrical safety.

IN THE TRANSPORTATION AND STORAGE SECTOR, AROUND 2 MILLION WORKING DAYS WERE LOST EACH YEAR DUE TO WORKPLACE INJURY AND WORK-RELATED ILLNESS

2. Set Automation Priorities

The risk assessment will highlight the key areas of business risk, allowing a business to set automation priorities. The next step is to gauge whether the business would benefit from an automated loading system. A standard viability questionnaire will help to ascertain whether a business would benefit from automation, the type of loading solution that would best suit their requirements, and how they should approach prioritising automation.

The questionnaire covers key issues, including:

Current unloading and loading processes:

- Type of loads (for example, pallets) – material, weights and size.
- Hours of operation, number of employees involved and the daily shift pattern.
- Inbound and outbound pallet flow volumes, on a daily, weekly, monthly and annual basis, and a forecast of how the business will scale (if this is a bottleneck).
- Equipment currently used – such as forklifts and electric stackers.
- Loading processes – for example, from the ground, the side or through rear doors.
- Type and size of trailer(s).
- Trailer routes and distances.
- Business issues arising from the current manual process, including:
 - Accidents and/ or 'near misses'.
 - Time taken to load/ unload.
 - Driver waiting times.
 - Limitation on growth due to manual processes.
 - Demand to reduce loading times.
 - Damage to goods or equipment.
 - Space limitations.

This information provides vital insight to support a business case for automation and fine tune the right automated loading system.

conclusion

Logistics companies are enjoying a boom time, with the global market expecting growth to continue at an annual growth rate of around 17.1% from 2023 to 2030. At the same time, escalating demand has placed enormous pressure on warehouse space, while the drive for higher velocity fulfilment across sectors is creating need for ever greater logistics efficiency.

Automating the unloading and loading process will significantly enhance safety and reliability throughout the entire operation. Goods move quickly through loading areas, with no need for forklift trucks. Processes are more efficient, ensuring deadlines are hit and reducing pressure on staff.

Space can be better optimised throughout the facility and a far calmer, low stress environment is possible, even in the event of staffing challenges or peak demands. With the entire process requiring far fewer people, it alleviates recruitment pressures, and ensures a safer, more fulfilling, and enjoyable environment for the existing workforce.

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if you have any questions, please get in touch!

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