WHITE PAPER

Optimise warehouse productivity and order fulfilment

Three ways lift trucks can help optimise operator performance, order picking workflows and storage space

Yale®
LIFT TRUCK TECHNOLOGIES

In today's always-on, e-commerce-driven world, customer expectations for a robust product selection and faster delivery times are pressuring warehouses to hit entirely new levels of efficiency.

From on-time shipments to average capacity used, warehouses are continuously challenged to improve performance to remain competitive, even as they face extreme cost pressures and labour challenges. This means maximising operator productivity, optimising workflows to get more orders out the door faster and implementing dense storage configurations to boost capacity.

This white paper examines three ways for warehouses to realise the most impactful efficiency gains, based on operational requirements and technology-enabled lift truck solutions.

01

Optimise operator performance

Whether loading or unloading trailers, putting away pallets or picking orders, best-in-class performance requires labour working to its full potential. Optimising conditions for peak labour productivity is two-fold. Environmental factors, such as inventory crowding, along with the amount of light and room to manoeuvre, can affect efficiency. Factors tied to operator comfort and energy can also heavily impact performance.

PROVIDE AN EFFECTIVE WORK ENVIRONMENT

Equipment must be properly outfitted to support operator performance and safe lift truck operating best practices. For instance, in tight spaces, characteristics such as a small turning radius and easy manoeuvrability are essential to maximising performance. A broad category of tools known as operator assist solutions can also help lend lift truck operators a hand.

Solutions can include traditional forklift awareness support like lights and alarms. Trailers, for example, can be dark inside, making it challenging for operators to move efficiently and without causing damage. LED lights installed at the base and forks of lift trucks can provide illumination in poorly lit environments, helping reduce the risk of damage and improve pedestrian and operator awareness.

Operator assist solutions can also take the form of technology systems that provide varying levels of support, including stability control systems and an even more advanced operator assistance technologies. A stability control system monitors input from the lift truck and applies automatic, real-time interventions to help support stable travel and provide operators with an immediate layer of feedback to help reinforce the safety best practices they learned in their training. Operator assistance technology goes even further, with awareness of not only inputs from the truck, but also of the operating environment. In practice, the most advanced systems can enable a broad range of functionality, such as automatically slowing down the truck if the system detects a pedestrian or obstacle in the path of travel. But not all technologies are created equal. Some solutions may only provide an alert to the operator, not an automatic performance adjustment.

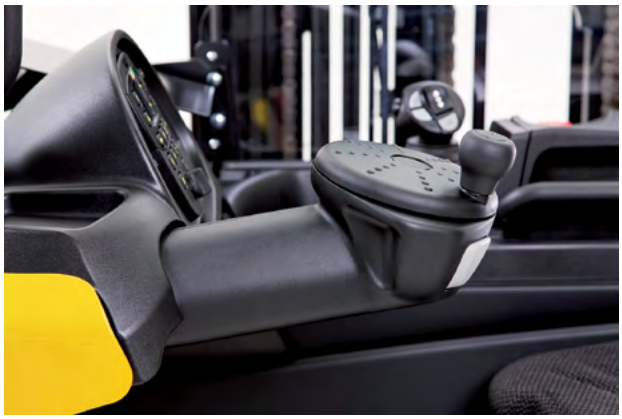
FIGHT FATIGUE

The natural enemies of operator productivity are fatigue and discomfort, and their impact can be dramatic. Over the course of a shift, operator productivity can decrease by as much as 30%. Operations cannot afford that decline — labour makes up 40-60% of a warehouse's operating costs, so maximising the return from labour investments is critical.

Equipment can help fight fatigue and discomfort, empowering operators to remain focused and efficient all shift long. Look for product characteristics that promote comfort, such as:

- **Large operator platform** with room to comfortably adjust stance
- **Power assisted steering** for smoother control and reduced effort
- **Extra cushioning** that provides shock absorption and minimises vibration
- **Pedal-free operator presence systems** for more freedom to position comfortably
- **Automotive-style steering** for a more natural, familiar feel
- **Open-space design** that provides ample space and line of sight
- **Visibility**, both through the mast and of fork tips for more precise operation
- **Adjustable armrest, backrest and steer tiller** for comfortable, tailored operating position

*Comfortable seating**



Adjustable steering

Adjustable steer tiller

* The seat shown includes optional features that may not be standard for your region.

02

Optimise order picking workflows

With labour difficult to find and retain, counting on increased headcount to keep up with growing order volumes is unreliable at best. Instead, warehouses need to do more with available resources and prime their workforce for maximum productivity – especially for the labour-intensive task of order picking.

Picking orders is foundational to enabling logistics operations to deliver the service levels consumers expect. But picking can be prone to inefficiencies, including significant time spent traveling between pick locations, too many product touches, aisle congestion and time spent lowering goods from storage locations. To help warehouses combat these inefficiencies, select workflow strategies and equipment capabilities can be deployed.

LEVERAGE THE GOLDEN ZONE

A full 80% of high-velocity, fast-paced order picking movement typically comes from just 20% of SKUs, making slotting strategy an important opportunity for optimisation. Organise storage based on product movement so that the items that need to be picked most frequently are in the most convenient pick locations, also known as the ergonomic golden zone. Arranging slower-moving SKUs above medium and faster-moving ones can enable pickers to minimise reaching and straining to access goods.

PICK THE RIGHT PATH

Best-in-class operations minimise pickers' travel time on foot and on lift trucks, so that they can spend more of their time actually picking orders. Limiting the range of aisles a picker covers and other tactics can help save time and reduce product touches, damage and aisle congestion. Equipment features can also help, such as the option to move a pallet truck between pick locations without having to climb back on, saving critical steps and seconds between picks.

03

Optimise storage

Two key trends work together to produce surging demand for warehouse space. Continued e-commerce growth and SKU proliferation resulting from consumer demand for greater product selection press operations to store and move larger inventories. But even though there are historic levels of warehouse space available, warehouse rent keeps rising and vacancy rates aren't budging.

Operations can't afford to overlook space challenges – capacity has become a critical measurement for high-performing warehouses. Space constraints impose limitations on the inventory warehouses can store, and consequently, the customers they can serve. Warehouses with insufficient storage and overflowing inventory may unintentionally result in inefficient slotting and storage methods, which can lead to disorganised picking practices and longer travel paths.

What are today's warehouses doing about it? With capacity constraints and pressure to do more with less, the logical step is to increase storage density. There are multiple effective tactics that can increase density, including vertical and double-deep storage configurations, narrower aisles and smaller, more manoeuvrable equipment.

RECLAIM VALUABLE SPACE

By definition, a warehouse is a place to house goods, but not all space within is reserved for storage. Space is consumed by many things, including lead-acid battery charging, maintenance, and storage rooms.

In addition to productivity and sustainability benefits, lithium-ion batteries are not as space-intensive as lead-acid. These newer electric options can allow operations to reduce to a ratio of one power source per lift truck, whereas they would typically need to stock two to three lead-acid batteries per lift truck due to long charging cycles. This helps reduce the need for significant designated indoor room and provides an opportunity to recover and repurpose that space for added capacity.

EXPAND STORAGE VERTICALLY

Much like skyscrapers maximise usable space in cities, warehouses capitalise on their existing footprint by building up, rather than out to take advantage of unused cubic volume. Equipment such as very narrow aisle (VNA) trucks are essential tools for operations to take advantage of higher-level storage locations.

VNA trucks can operate in aisles as narrow as 1.4 metres, less than half of a standard aisle width. Not only that, VNA trucks can service storage heights up to 16.9 metres high, helping maximise the cubic storage volume of the warehouse. To help operators stay productive in high-density configurations, through-the-mast visibility is important for precise handling, and using a 180-degree rotating turret head allows them to easily serve both sides of an aisle. While working at height, stability is a critical element to enable operators to work confidently and effectively. Wire guidance options can automatically steer the truck along the desired in-aisle path. Technology can also assist operators with speed, providing step-less speed control by optimising maximum travel speed depending on the fork height.

OTHER WAYS TO INCREASE STORAGE DENSITY

Reach trucks can also enable strategies that offer greater storage density, capable of working in 2.4 metre wide storage aisles. Characteristics that support operator comfort, speed and precision such as ergonomics, lift speed and visibility must be evaluated to ensure that the increased storage capacity does not come at the cost of significantly more time and energy required to service elevated locations. For instance, an operator may lack the necessary confidence and precision to reach productivity targets if the design of the equipment does not provide sufficient visibility to see the forks and load when picking or placing pallets at height. Similarly, an ergonomic design helps fend off fatigue and discomfort to keep operators fresh and productive all shift, even while manoeuvring in tight spaces and servicing elevated locations.

Warehouses can also store two pallets at a single location to increase storage density. Reach trucks with double-deep reach capabilities that efficiently service storage positions two pallet loads deep can enable more capacity than single selective racking, without compromising fast storage and retrieval. Faster lift and lower speeds can quickly add up when servicing higher-level and double-deep storage – just one additional pallet move per hour can amount to 7% greater productivity.

Optimise, then re-optimise

The forces pushing warehouse operations to innovate are not slowing down, in fact, many are accelerating. For today's warehouses, there's a fine line between struggling and thriving, and the extent to which they are able to optimise their operation can be the deciding force.

Performing at a high level requires constantly re-evaluating strategies, workflows and technologies. A partner that has the breadth and depth of solutions to identify the most effective options for top performance throughout an operation can better position a business to get the most out of what they have.

To learn more about comprehensive warehouse solutions by Yale, visit www.yale.com.

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