



# Solutions for your **warehouse.**

Trucks to suit every warehouse application.

# The five types of warehouse operation.

## Choosing the right truck for different applications.

As a manufacturer, Yale® derives warehouse industry knowledge and insight from our first-hand experience of solving materials handling challenges.

We utilise that experience to provide solutions for our customers throughout the industry. From components to finished goods, no matter what the load, Yale has the right materials handling solution.

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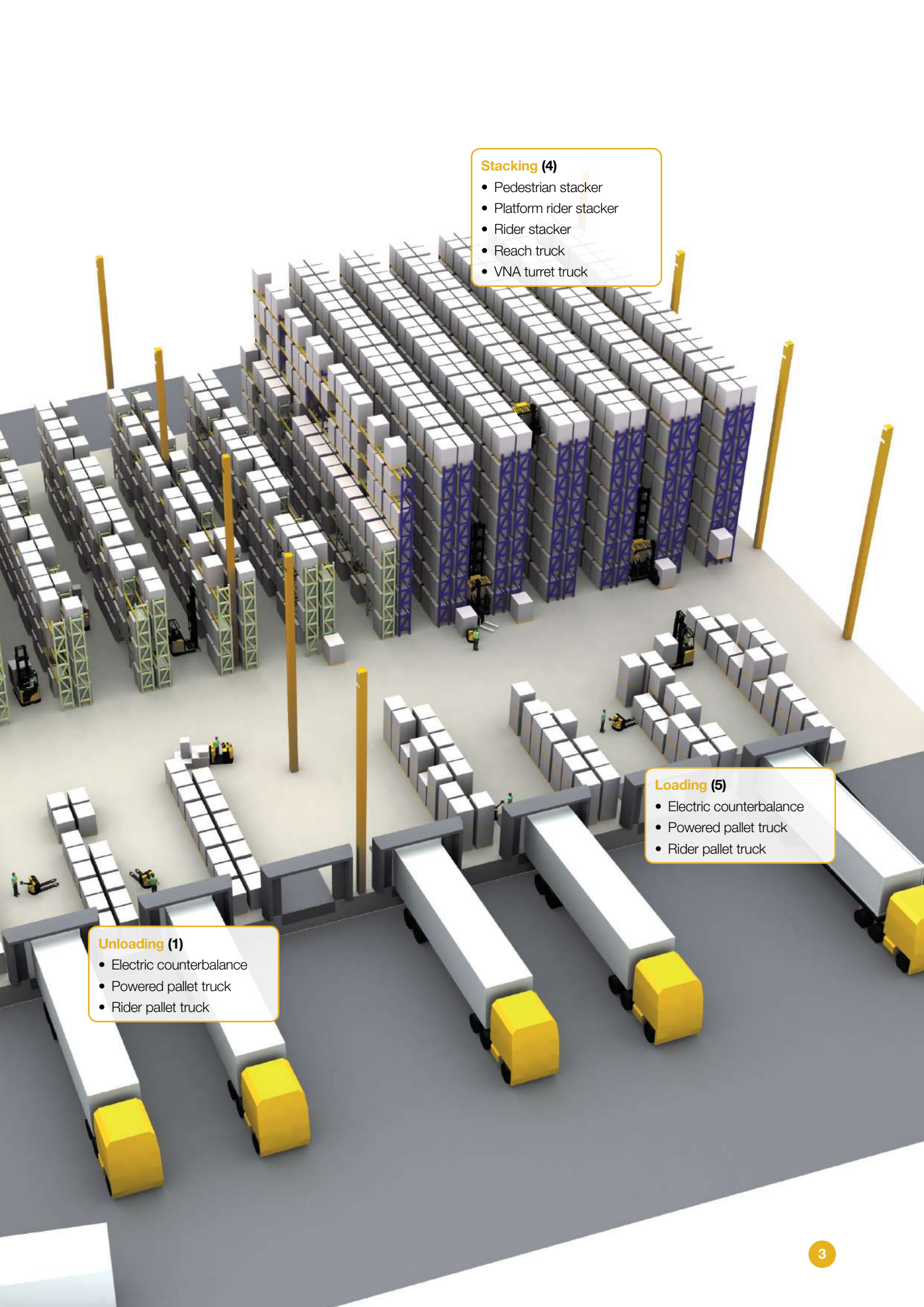
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# Improving the efficiency of your warehouse.

**Maximising available space; rather than expand your warehouse footprint, consider better use of vertical space.**

Warehouses are expensive to operate. The cost of the land, building, machinery, labour and the items stored in the warehouse can be taxing.

Most companies would like to maximise the operation of the warehouse, either by streamlining the placement and picking

of goods, reducing the time goods are stored, or automating to minimise labour costs, while improving accuracy.

Costs can be reduced by efficient utilisation and optimisation of space.



**LIFO: Last In, First Out**  
The last item put in storage is also removed from storage first, e.g. drive-in racking.



**Fixed Location**  
Every stock keeping unit (SKU) is assigned to a fixed storage location. Storage bays designed to handle maximum volume and load dimensions.



**APR: Adjustable Pallet Racking – Standard**  
Normally used for high rotation and replenishment warehouses. APR is well suited for stacking and order picking at the same time in the same aisle.



**APR: Adjustable Pallet Racking – Double Deep LIFO**  
High storage density, space utilisation increases. However, additional height clearances may be required. Suitable for low stock rotation or low throughput.



**FIFO: First In, First Out**  
The first item stored is the first removed e.g. goods with limited shelf life, perishable goods, goods sold by date and production lots.



**Random Location**  
Best utilisation of space, any free storage location can be allocated to a SKU.



**Adjustable Pallet Racking**  
Well suited for order picking, but specialist equipment is necessary, e.g. dedicated traffic aisles, guidance systems rail or wire. Floor quality is critical, so a survey is required.



**APR: Adjustable Pallet Racking – Automatic Storage and Retrieval System (AS/RS)**  
Very high storage density, stacking heights 15 to 30m. Wind and building factors are critical, but planning restrictions and automation can reduce labour costs.



**Honey Combing**

Each lane is dedicated to a SKU. It is undesirable to mix SKUs in an aisle and aisles must be fully vacant to accept a SKU reference.



**On The Floor**

Block stacking of full pallets. Space utilisation good, but possible damage or contamination of product. Very economical, with no racking costs, and flexible goods can be easily relocated. Typically used where the floor space is greater than the required storage space. Very high cube utilisation but for a limited height.



**Order Picking**

A number of key factors affect total cycle time: pallet or cage pick-up, picking information, start of pick-to-storage area, picking route, the distance from storage area to the outward goods area to unload the pallets or cages.

Operators constantly on their feet, driving and walking and some operate extended hour shifts. In a single shift they may have to handle 8 to 10 tonnes of material.



**Block Stacking LIFO**

Very economical with no racking costs and can be easily relocated. Normally used for many pallets with the same SKU.



**Mobile Racking**

Random, very high storage density, high installation cost.

**Picking Strategies**

Defines the collection of order lines that a certain truck will have to handle.

- **Complete order picking:**  
The order picker travels through the warehouse to complete one pallet with order lines belonging to a certain order.
- **Batch order picking:**  
Same strategy as complete order, but for multiple orders at the same time. Afterwards the pickings are sorted by order. Several smaller "orders" are combined into one pick list.
- **Wave / zone order picking:**  
A variation on batch picking, rather than order pickers moving from one zone to the next for picking, all zones picked at same time. Items are sorted afterwards into individual orders, normally at despatch area.



**Cantilever Racking**

Adjustable for abnormal loads. Long loads stacking, e.g. for pipes (steel, aluminium, brass, etc.), timber and large dimensioned crates.

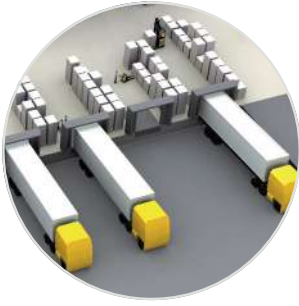


**Temperature Controlled Stores**

Cold stores operate from +3°C down to -10°C or more dependent on the product, and maximise 'cube' storage area, but minimise the facility footprint. The use of special lubricants prevent ice build-up around door areas and roof space.

Cold store automation is financially beneficial typically producing 60% more capability.

PICKING STRATEGY	TRUCK TYPE	KEY FEATURES	TYPICAL APPLICATION
Batch order picking (ground and first level)	MO20	<ul style="list-style-type: none"> <li>• Convenient on/off access</li> <li>• Large range of fork lengths</li> <li>• Optional adjustable platform</li> </ul>	<ul style="list-style-type: none"> <li>• Retail</li> <li>• FMCG</li> <li>• Food</li> </ul>
Batch or wave order picking	MO10E	<ul style="list-style-type: none"> <li>• Ergonomic controls</li> <li>• Platform and forks that can be raised</li> <li>• Available with Fixed Cabin, walk-on platform or supplementary lift</li> </ul>	<ul style="list-style-type: none"> <li>• Smaller warehouses e.g. for food or retail</li> </ul>
Wave order picking	MO10	<ul style="list-style-type: none"> <li>• Narrower chassis than MO10S</li> </ul>	<ul style="list-style-type: none"> <li>• Medium size warehouses, e.g. for spare parts</li> </ul>
Wave order picking	MO10S	<ul style="list-style-type: none"> <li>• Lift height to 10m</li> </ul>	<ul style="list-style-type: none"> <li>• Larger warehouses, e.g. for spare parts or furniture</li> </ul>



# Areas 1 and 5: Unloading and loading.



# Electric counterbalance and pallet trucks.

**Our counterbalance solutions enjoy longer service intervals and less downtime. These money-saving benefits are further enhanced by technology features. The ECO-eLo mode enables our electric trucks to optimise efficiency and reduce energy consumption.**



## **VC and VT Series: Ergonomically advanced and productive three-wheel electric trucks**

Specially designed to manoeuvre around restricted spaces the three-wheeled version is ideal for congested loading and unloading bays where space is tight. Performance features include hydraulic controls and high visibility to maximise efficiency and productivity.

The VT Series with front wheel drive, combines great performance and energy efficiency and is suitable for medium to heavy duty work. A wide range of platforms and battery options deliver low energy consumption while ergonomic design reduces operator fatigue.



## **VL and VM Series: High performance and energy efficient four-wheel electric trucks**

Yale four-wheel electric trucks are available in a range of voltage options in both conventional and drop battery box designs. Tight turning circles and stability make them ideal for high stacking limited space applications.

With up to four lifting capacities they are suitable for heavy duty applications up to 5500kg. Performance features include a high operator seating position and a 'Return to set' tilt function for control and accuracy. Hydraulic controls, adjustable steering columns and emergency disconnect buttons all ensure the operator stays in control.



## **MPSC12 Super Compact Powered Pallet Truck**

Built to last, with their compact construction and a tight turning circle these trucks are easy to use. They are ideal for loading or unloading lorries and for internal transportation of closed and open pallets over short or long distances. Yale offers a range of electric pallet trucks for all your pedestrian material handling needs.



Compact trucks are able to work in lorries and containers.



Powered pallet trucks allow efficient transfer of goods.



## Area 2: Internal transportation.



# Pedestrian powered, platform and rider pallet trucks.



**Rider pallet series**  
Sit, lean or stand.



## MP16-22 Pedestrian Powered Pallet Truck

The MP Series low lift pallet truck has been designed to maximise productivity. Designed around the needs of the operator, the truck offers impressive ergonomics and strong maneuverability, enabling the operator to work effortlessly and efficiently even in the most congested areas. Performance enhancing options and standard features provide dependable and efficient movement of loads.



## MP20X Platform Pallet Truck

The MP20X has been designed for medium to heavy duty applications, whilst the MP20XD has been specifically developed for double pallet handling in large capacity trailer loading applications.

All our platform trucks are ideal for logistics operations, intensive vehicle and trailer charging and discharging, cross docking and horizontal transport over medium to long distances, cold store -30°C and production line feed.



## MPC14 Compact Powered Pallet Truck

A compact construction and tight turning circle make these trucks easy to use. Ideal for loading for unloading delivery vehicles and for internal transportation of closed and open pallets over short or long distances.

Yale offers a wide range of electric pallet trucks, suited for a variety of pedestrian material handling needs.



## MP25 HD Heavy Duty Pedestrian Powered Pallet Truck

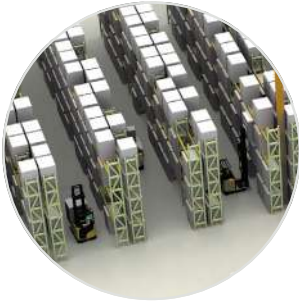
A highly manoeuvrable pedestrian pallet truck, developed for comfortable operation and to provide maximum productivity.

The MPHD Series is designed for medium to short distances and for vehicle loading and unloading in heavy duty indoor load handling, lorry charging and discharging, horizontal transport over short and long distances and ramp and gradient applications.



## MP20-25T Rider Pallet Truck

Transfers goods over a range of distances while offering a working environment that promotes fast cycle times and high throughput levels. A sideways seat position offers excellent visibility in both travel directions while flexible adaptive seating allows the user to sit, lean or stand.



## Area 3: Order picking.



# Order picker trucks.



## MO10-25 Low Level Order Picker

Offers quiet, simple operation and numerous features, focused on ensuring operators can achieve faster, more accurate order picking.

Ideal for first and second levels, with a choice of lifting platforms and scissor lift option. For use in high capacity warehouses where horizontal transport is needed over short and long distances.

Both ranges include buttons on both sides of the order picker, improving operator control and reducing fatigue.



## MP20DL Shelf Stocker Pedestrian Controlled Powered Pallet Truck

Designed with the operator in mind, the MP20DL raises the pallet to a comfortable working height and helps to reduce operator fatigue, when replenishing shelves, order picking and lifting goods.

Its narrow and short chassis make it both compact and manoeuvrable, providing fast, productive and economical indoor horizontal transportation. Offering loading and unloading for low-cost, low level order picking operations.



## MO10/10E High Level Order Picker

Designed for second and third level picking up to around 4.8m and includes fixed fork, fixed cabin, supplementary lift and walk-on-platform or cage models. Providing the precise application solution in warehouses where picking individual items to fulfill customer orders is the primary focus.

Available with rail or wire guidance for operation in very narrow aisles and with pick locations up to 9m, the MO Series maximises pallet locations for lower turnover items and very dense storage in the minimum space.



## Tow Tractor/Tugger Train

When it comes to efficiency and productivity in any warehouse operation, Yale provides trucks with enhanced performance, manoeuvrability and a range of innovative features, to make your operation more productive. A range of trailer options expand this capability to deliver a full range of warehouse solutions.



## Area 4: **Stacking.**



# Pedestrian stacker, platform stacker and rider stacker.



## MS10-12E Pedestrian Stacker

A low cost materials handling solution that makes the most of valuable warehouse space. Designed to be operator friendly with smooth drive, lift and lower control to provide easy manoeuvrability in the tightest corners of the warehouse or production floor.

An ideal low cost solution for storage retrieval in medium to large operations. The ergonomic design helps maximise operator productivity when handling open sided pallets and containers and placing goods into multi-level racking.



## MS10-20 Pedestrian Stacker

A highly controllable and agile pedestrian stacker with lift capability suitable for a range of user heights and experience levels. The MS series provides through-mast visibility, robust construction and broad usability.

Ideal for supermarket store rooms, small-scale warehouses and cold stores, industrial manufacturing, retail outsourcing operations and where a low-cost storage and retrieval solution is required. The ergonomic design maximises operator productivity when handling open sided pallets and containers and placing goods into multi-level racking.



## MS12-15X-IL Platform Stackers

Combines pedestrian stacker manoeuvrability with ride-on pallet truck travel speed, offering power, precision and reliability for a variety of demanding operations. Available with initial lift (IL) or straddle leg (SL) options, ideal for stacking and retrieving palletised goods.

With a high visibility mast, dual lift and lower controls, low effort power steering and speed reduction cornering, they are the perfect solution for short or long distance. transfer applications and on ramps or gradients. Also for extended and multi-shift operation work cycles, stock replenishment in a range of racking levels and cold store down to -30°C.



## MS16S Rider Stacker

Designed for stacking and retrieving goods in long internal transport operations. Compact dimensions make it perfect for narrow aisles whilst the fully adjustable cushion seat permits seated, leaning and standing operation, providing user with a comfortable ergonomic working environment.

High travel and lift/lowering speeds deliver impressive productivity in high throughput applications and a viable alternative to a reach truck in less demanding operations. Ideal for operating in warehouses, stores and confined production areas, block stacking applications and narrow aisles.



**A low-cost materials handling solution that makes the most of valuable warehouse space. The Yale MS Series is highly agile with a lift capability suitable for a range of user heights and experience levels.**

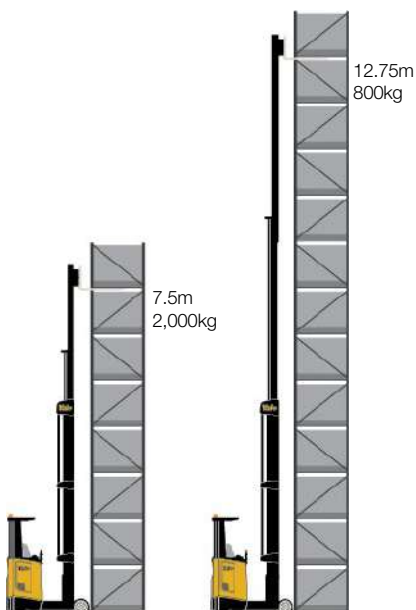
# High level stacking trucks.



## MR14/16/20/25/N/HD

The Yale MR series delivers more. More flexibility with seven models in capacities from 1,400kg to 2,500kg and lift heights up to 12.75m. More choice with three chassis available to match your application. More productivity with higher travel, lift and lower speeds. More comfort with ergonomic controls and enhanced visibility, more efficiency with easier serviceability and lower costs of ownership.

The robust heavy-duty mast design provides high residual capacities and stable load handling enabling faster put away and retrieval times.



## MTC10-15 Very Narrow Aisle Turret Trucks

An ideal solution for optimising pallet storage and retrieval at very high levels in very narrow aisles (VNA). Yale MTC is perfect for applications requiring greater cube utilisation of the warehouse environment. Adept in very narrow aisles, the MTC Series allows the warehouse to increase storage density while still permitting 100% selectivity and the ability to quickly move high volumes.

Capable of lifting to 17m the MTC Series ensures maximum usable space is utilised. Elevating the operator provides good visibility at all times and also enables piece picking when required.

## Industry 1st

- Touch screen technology
- Dual CANbus technology
- 'Get Home' function
- Laser positioning



Premium touch screen display allows operators to be in full control at all times.



Laser positioning allows operators to work faster, safer and reduce damage to products and racking.



# High level electric counterbalance trucks.



## VC Series 1300kg – 1500kg Three-wheel superelastic tyre truck

Designed to manoeuvre in the tightest spaces, and to move pallets in containers and warehouses effectively.

The VC Series provides a lower initial acquisition cost solution for medium duty applications where performance, maneuverability and battery shift life are all important.

Vehicle System Manager (VSM) allows the truck operator to monitor key truck functions to provide operator and application matched performance.



## VT Series 1500kg - 2000kg Three-wheel superelastic tyre truck

The compact design allows operation in the narrowest aisles and also provides high manoeuvrability.

Energy efficiency and productivity can be matched to suit application needs while the unique 'e-Balance' provides businesses with the best of both worlds.

The widest range of platforms and battery options ensure this is an ideal solution, whatever the shift pattern.



## VA Series 1600kg – 2000kg Four-wheel cushion tyre truck

This four-wheel, front wheel drive cushion tyre electric counterbalanced forklift truck is powerful, highly manoeuvrable and stable in high stacking applications.

With a platform width of 945mm (1.6t and 1.8t) and 986 mm (2.0t) it is ideal in applications that require a tight turning circle (AST4) and narrow dimensions for stacking 1000mm wide loads.



## VF Series 1600kg – 2000kg Four-wheel superelastic tyre truck

Designed to operate in the narrowest of aisles and also provides strong manoeuvrability. Energy efficiency and productivity can be matched to suit an application while 'e-Balance' provides your business with the best of both worlds. VF series electric forklift trucks have the widest platforms and battery options, So, whatever the shift pattern or operation there is a model to suit.



## VL Series 2200kg – 3500kg Four-wheel superelastic tyre truck

An 80V energy efficient fork lift truck that delivers high productivity in medium to heavy duty internal or external applications.

Equivalent ICE performance from the Yale 'Productivity' model can be matched to suit any application while 'e-Balance' provides the best of productivity and efficiency.



## VG Series 2200kg – 3500kg Four-wheel cushion tyre truck

Designed specifically for arduous internal applications, this 80V, four-wheel, cushion tyre truck is powerful, highly manoeuvrable and stable in high stacking applications. With a choice of short, medium and long wheelbase models there is a model to suit almost every internal application and shift pattern requirement.



## VH Series 4000kg – 5500kg Four-wheel cushion tyre truck

A heavy duty, high performance truck designed for arduous internal applications.

The 80V VH Series offers four lifting capacities to cope with demanding industrial and manufacturing applications and multiple shift patterns. The truck's compact dimensions and high manoeuvrability allows it to operate in warehouses and production facilities where space is limited and high capacity loads are handled.



## VM Series 4000kg – 5500kg Four-wheel superelastic tyre truck

An 80V energy efficient fork lift truck series that delivers high productivity levels in heavy duty internal or external applications.

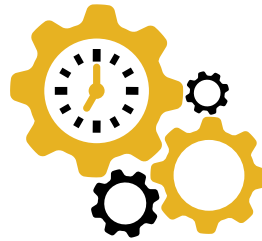
The VM series delivers equivalent ICE performance, which can be matched to suit the application while 'e-Balance' provides the best productivity and efficiency.

A high residual capacity makes it the ultimate lift truck for heavy duty and attachment applications in applications up to 5,500kg.

# Telematics.

## Manage your costs, optimise your productivity, protect your assets.

Take your fleet operation to the next level with Yale Vision wireless fleet management. This system helps you to deliver fleet efficiency, improve operator performance, reduce your carbon footprint and lower overall materials handling costs.



## Ensure maximum productivity from your lift truck investment.

A lift truck fleet is a significant investment requiring protection from abuse, neglect and unauthorised operation. With impact sensing, periodic maintenance tracking and access control, Yale Vision helps promote improved operator performance.

Using your own pre-shift and post-start checklists, the access control option ensures trucks will not operate until the inspection is complete.

Achieving peace of mind around the clock and wherever your trucks are located.



## Monitor operator behaviour, optimise fleets.

See what your fleet is doing with Yale Vision. Remote hour meter/usage tracking records, gives access to data and reports showing utilisation from individual trucks to entire fleets. Optimize your fleet size, structure and location for maximum productivity and minimum idle time.



## Manage your total cost of operation.

Knowing your total cost of operation provides business intelligence above and beyond simply knowing asset ownership costs. The comprehensive monitoring of operational costs through Yale Vision, enables you to manage truck, fleet and labour assets, including contract costs, maintenance, acquisition and more. Cost of operation can be viewed and analysed by truck, by fleet and by location. Giving you the knowledge to help you get the best value from your lift trucks.

# Setting the **service** standard.

**Yale electric counterbalance trucks are designed to keep your business moving. That means better access to make servicing as easy as possible, reducing your downtime and increasing your productivity.**

#### **Servicing made simple.**

Everything about a Yale electric truck is designed to make maintenance easy. Swing-open doors, fast-release floor plate providing easy access to motors, hydraulics and foot-well components. Maintenance-free 'greased for life' mast rollers, 100% leak free disconnect hydraulic fittings and user-friendly side access battery extraction. Yale trucks are engineered to optimise uptime.

#### **Working harder for longer.**

Not only are we making servicing easier, we're making the time between each service longer. We recommend intervals of 3,000 hours for hydraulic oil and filter changes, and 1,000 hour transmission oil changes.

#### **Fast fault identification.**

Get your equipment back up and running with our advanced on board diagnostics. A single plug-in service connects your service engineer's laptop to our truck providing instant access to essential service information, facilitating first time fixes. While our dual integrated CANbus technology ensures rapid identification of faults.

#### **Support you can count on.**

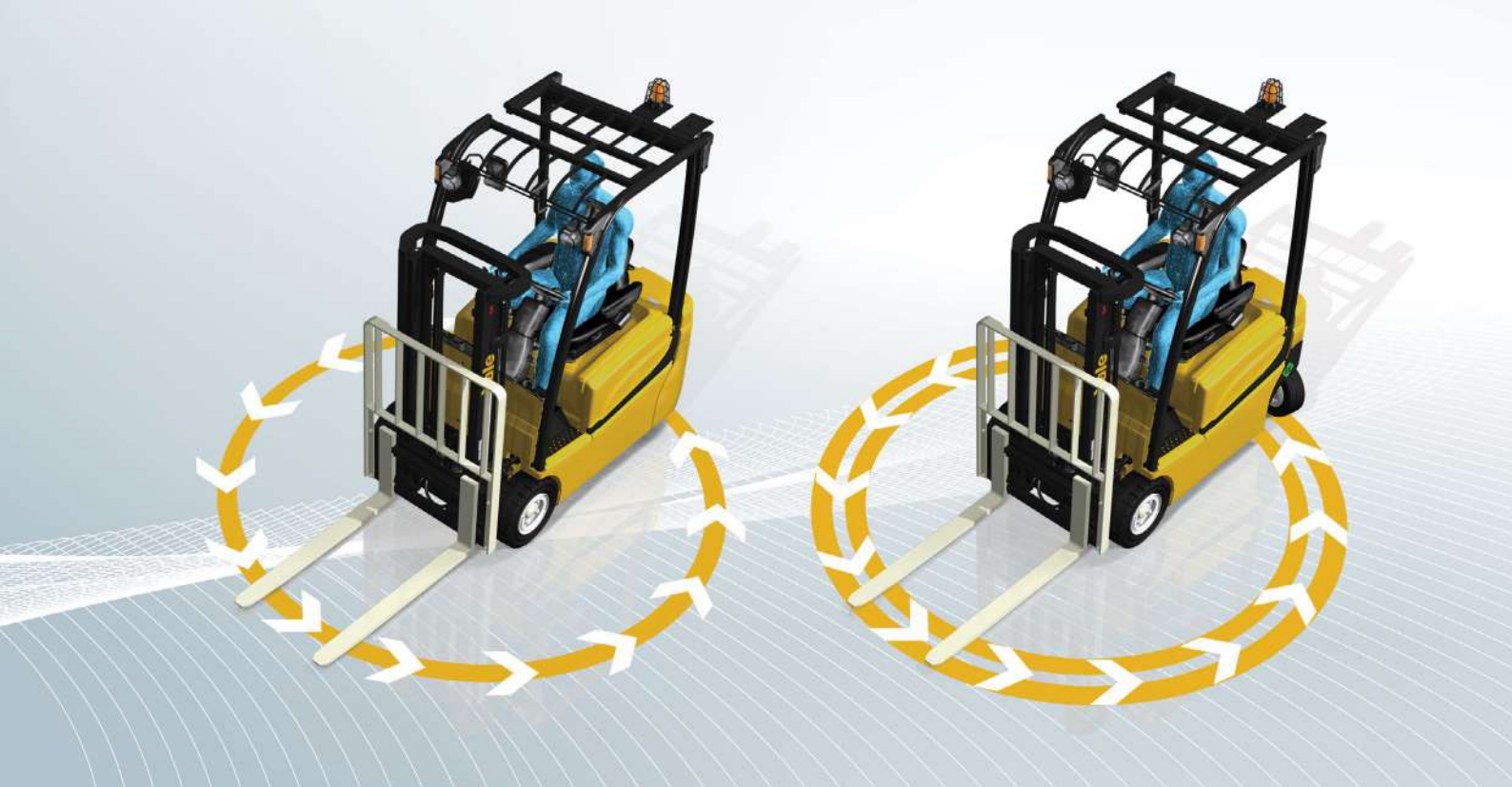
No-nonsense Yale back-up and after-sales support means delays and downtime is kept to a minimum. We have 2.5 million parts all available for immediate dispatch.



"We wanted to equip our warehouse with a modern intralogistics solution that even with continued growth offers a degree of scalability. Among the many proposed solutions, the Yale concept was the only one that convinced us immediately."

**Bernd Schmidt**

Chief Executive Officer, Ellerhold Zirndorf GmbH



## Whatever Yale equipment you're using in the warehouse, rest assured it's engineered to maximise productivity.

A host of features provide unbeatable fast load handling, smooth direction changes and high manoeuvrability in tight spaces.

### **Productivity.**

When your business demands greater productivity, Yale motors provide increased travel and mast speeds, enabling you to move more loads per hour.

### **Cost of ownership.**

Yale and its dealer network are committed to supporting customers during the entire life cycle of its products.

- Choosing the most productive model for your application, advising on the most effective layout and equipment required using our unique Warehouse Simulator
- Identifying additional services including finance options from Yale Financial Services to fleet management using Yale Vision telemetry
- Providing expert maintenance and repair through our independent network of Yale Dealers and Service technicians

Yale technicians are highly trained professionals with the expertise to meet all your high servicing needs.

They understand the complexity of our trucks and are certified to consult on and maintain the entire high capacity truck range with access to Yale's extensive technical reference and support services.

Yale has a long-term vision to support your truck throughout its life. Availability of key parts is assured. Our parts distribution centre has over 2.5 million parts in stock. We have emergency response times inside two hours and next day delivery for most parts. Our dealer commitment includes a 4-hour service response time to calls received before 2:00pm (local time) and a 90 minute average repair time.

### **Ergonomics.**

The more comfortable your operators, the more productive your operation will be. That's why all our trucks have ergonomically advanced features designed in.

### **Higher residual values.**

Yale residual values are amongst the best in the industry. So, if you should ever want to change your Yale truck, you know you won't lose out. Lower energy consumption, excellent residual values and increased uptime, everything to make your money go further.

# About Yale<sup>®</sup>



Yale is a leading global manufacturer and supplier of high-quality counterbalance forklift trucks, warehouse equipment and fleet solutions. 'People, products and productivity' sums up our approach to materials handling business. With over 140 years' experience, we are proud of our reputation as an innovative, forward-thinking manufacturer.

Yale dealerships provide flexible truck servicing solutions and are linked to one of the industry's most sophisticated parts distribution operations. You'll find support for Yale forklifts throughout the EMEA region – provided by a big regional footprint stretching through Europe, Middle East and Africa.

## Materials handling for:



Automotive



Beverages



Chemical



Construction



Food



Logistics



Metals



Paper



Retail



Wood

## HYSTER-YALE UK LIMITED trading as Yale Europe Materials Handling



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