

VT, VF and VL Series

Electric Counterbalance Forklift Trucks





After conducting extensive customer research, Yale has invested heavily in developing its latest range of electric forklift trucks – the most ergonomically advanced and productive counterbalance forklift truck series available on the market today.



Combining people and products to create outstanding productivity is a key objective of Yale. Each truck in the range demonstrates a total commitment to:

- Innovation
- Cutting-edge design
- Comprehensively tested materials handling equipment
- The use of advanced components
- Superior manufacturing techniques.



Yale takes great pride in ensuring everything's in its right place. From the design of the truck to providing the best application solution, productivity is improved at every opportunity. Nowhere is this philosophy more evident than in the Electric Forklift Range.



Lifetime Cost of Ownership

True Ownership Costs

The purchase price of any lift truck is only a small part of its overall cost. Cost of Ownership of a lift truck includes periodic maintenance, unscheduled repairs, brakes and energy costs. So when designing the latest Electric Range, all of these factors were taken into account. The result is a truck that provides industry leading ergonomics, increased battery shift life and productivity and truck uptime.

It has also provided users with the opportunity to customise their truck to match their application requirements. The Yale Electric Range provides the perfect answer to driving down the cost of ownership.

Range Overview

Yale’s range of 48 Volt three-wheel and 48 and 80 Volt four-wheel electric trucks have been designed to provide the most energy efficient and productive materials handling solution, at the lowest cost of ownership for the widest range of applications.

The three-wheel VT truck is available in **23** different configurations of lifting capacities and wheelbases. Add to this the number of different amp hour capacity batteries and the options available increase further still.

For long travel distances, external applications or where more space is available, Yale four-wheel VF and VL electric forklift trucks combine compactness with the performance normally associated with ICE trucks.

The four-wheel VF is available in **11** and the VL in **5** different configurations of lifting capacities and wheelbases. This wide choice, together with a range of battery capacity options, increases the ability to meet an exact application matched specification.



VT Three-Wheel Electric Truck



VF Four-Wheel Electric Truck

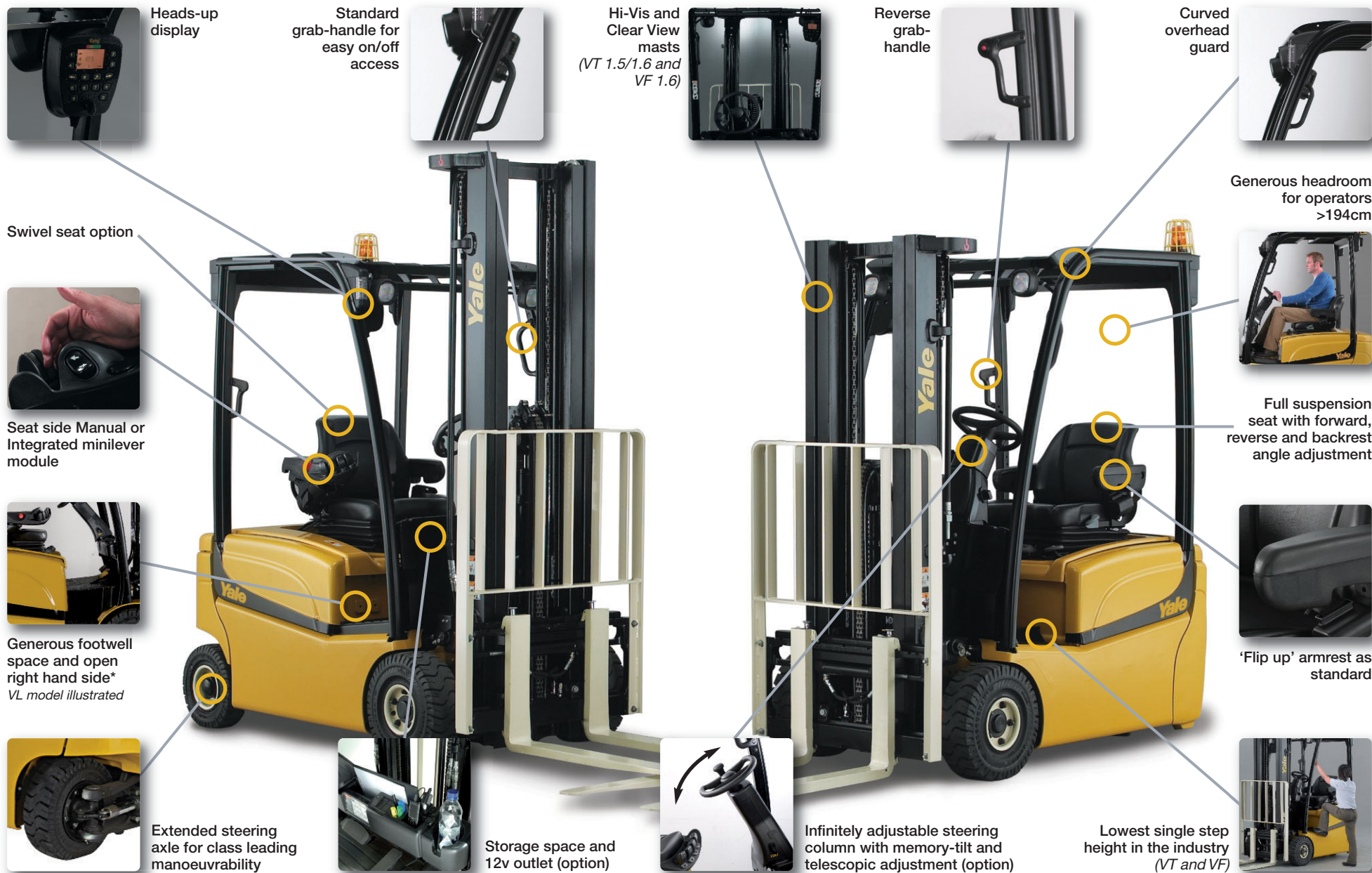


VL Four-Wheel Electric Truck

Model	Capacity	Wheel bases			High frame for high capacity/Yale custom batteries	Side extraction available	New clear view mast
ERP-VT	1500	S	–	–	No	Yes	Yes
	1600	S	M	L	Yes	Yes	Yes
	1800	–	M	L	Yes	Yes	No
	2000	–	M	L	Yes	Yes	No
ERP-VF	1600	–	M	L	No	Yes	Yes
	1800	–	M	L	No	Yes	No
	2000	–	–	L	Yes	Yes	No
ERP-VL	2200	S				Yes	
	2500	S	L			Yes	
	3000	–	–	L		Yes	
	3500	–	–	L		Yes	

S = Short, M = Medium, L = Long

For long or short travel distances in inside or outside applications, where there is confined or unlimited space or the requirement for a special application accessory there is a Yale Electric forklift truck to meet the specification your application requires.



*When fitted with the mini-lever module option

Ergonomics

When it comes to operators, comfort is everything

It's the reason why the Yale Electric Range of forklift trucks has been designed with industry-leading ergonomics throughout. After all, the more comfortable operators feel, the more productive they will be. A host of class-leading ergonomic features help to significantly reduce whole-body vibration, repetitive strain injury, back, neck and thigh pain, ensuring operators can work both comfortably and productively.



Best-in-class operator access and seating position

The VT, VF and VL Electric trucks have been designed to comfortably accommodate the smallest (<160cm) to the tallest operators (>194cm).



VL model illustrated



Small Operator ~ <160cm



Average Operator ~ <180cm



Tall Operator ~ >194cm



Seating

Yale puts operator ergonomics and comfort at the forefront of product design

The full suspension seat has been designed to significantly decrease the operator's exposure to the transmission of ground shocks, resulting in 'Class leading' reductions in Whole Body Vibration levels.

- Easy adjustment to suit stature and weight, providing the correct suspension and full operator comfort
- Armrests as standard
- Easy forward, reverse and tilt adjustment for ideal seating position
- Swivel seat option for reverse driving comfort: 12° to right and 5° to the left
- High backrest and lumbar support option for the ultimate in comfort.





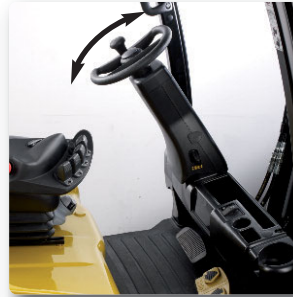
Manual levers



Mini levers module



VT/VF model illustrated



VL model illustrated

“We’re always looking for enhanced comfort in the forklift trucks we purchase, because the more comfortable the truck is, the more productive our operators are”

Robert Boydell - Global Commodity Manager,
Borg Warner

Mini-lever module and armrest

Ergonomic functionality designed by experts

- Designed to reduce stress on the operator’s arms, hands and fingers
- Integrated direction switch enables operators to control all the major truck functions without removing their arm or hand from the armrest
- Padded construction allows the operator to comfortably lean on the armrest which provides additional comfort over long shifts
- Full integration with the seat – designed to move simultaneously when seat is adjusted
- Easy forward/reverse, up/down adjustment
- Ergonomic manual-levers have been designed with soft-touch moulding and a contoured shape, angled outwards to correspond with the way the arm and hand naturally fall. The direction switch is also incorporated into the module.

Steering column

Adjustable design to steer you in the right direction

- Infinitely adjustable through the range (26°)
- Easy adjustment for the most comfortable driving posture
- Gas spring assisted
- Mounted to the cowl, to provide increased space in the footwell area
- Contoured for easy on/off access
- Ergonomic options include telescopic adjust, memory-tilt and synchronous steering.



VL with cab model illustrated



Productivity

Ensuring everything in your application operates beautifully

The productivity of any application is affected by a multitude of factors: number of pallets moved, truck reliability, operator efficiency and ease of servicing.

It's only through monitoring, controlling and measuring performance that productivity can be truly increased and cost of operation optimised.



Excellent Forward Visibility

A lift truck's mast has to absorb significant stress during lifting and lowering operations. The Yale mast is legendary in the area of rigidity and stability, featuring nested mast channels. This allows operators to place and retrieve loads at high lift heights with confidence, reducing damage and increasing productivity.



"When we've got hundreds of pallets to be unloaded and prepared for collection in a small amount of space, and at predetermined times, we can't afford expensive delays. We need our operators to be working effectively, efficiently and safely at all costs".

Chris Arnold - Head of TLI (Network), GEFCO UK



Superior Reverse Driving Position



Outstanding Overall Versatility

The Yale 1500kg and 1600kg VT and VF trucks are available with new *Clear View* masts for excellent, class-leading forward visibility.

The *High-Vis* two stage LFL or two and three stage FFL masts available across the range feature a flush face design with angled load rollers and widely spaced channels to provide full face roller contact for maximum reliability and durability.

With excellent forward visibility, operators are able to work safely and more efficiently than ever before. In turn, load-handling efficiency is increased delivering greater productivity.

With many operators spending 50% or more of their time driving backwards, a comfortable reverse driving position is essential to maintain productivity levels over long shifts.

Yale Electric trucks feature an available rear grab-handle with integrated horn button, clear footwell and an optional swivel-seat to help alleviate neck, torso and leg strain when driving in reverse for long periods.

No two applications are identical, which is why Yale Electric trucks have been designed to offer outstanding versatility and to surpass the demands of the most challenging working environments.

Powerful hydraulics, dual front-wheel AC drive, side battery extraction and compact turning radius are best-in-class features that help deliver optimised load-handling efficiency.



Heads-up display

Everything you need to know at a glance

- Quick and easy-to-read LCD screen display positioning frees up driver field of vision for more productive load handling
- Soft keys allow the operator to access the truck menu and choose from four performance modes to suit the application



VL model illustrated

■ Heads-up display provides information on:

- battery charge level
- direction of travel
- hours worked
- automatic park brake applied
- steer wheel angle
- performance mode set-up
- time
- diagnostic troubleshooting codes

A load weight indicator option is also available

- Easily accessible on-board diagnostics help maximise uptime.



VT/VF model illustrated



VL model illustrated

Dashboard

Generous storage for an uncluttered workspace

- Storage space includes provision for a clipboard, a drinks holder and storage pockets
- Light switches are also located on the dashboard and there is provision for an optional 12V power outlet
- For lift trucks with an integrated cabin, the wiper motor is incorporated into the cowl maintaining maximum operator visibility.



VL model illustrated

Automatic park-brake

One less thing for operators to worry about and standard across the Yale VT, VF & VL Series

The YaleStop automatic park-brake is an important safety and ergonomic feature for operators who get on and off the truck frequently.

- An electro-magnetic release brake is automatically activated when the truck is not in motion, or when the operator is not seated
- YaleStop can help increase productivity significantly and there are no more annoying buzzers associated with the operator getting off the truck having forgotten to set the handbrake
- Controllability on ramps and grades is also enhanced.



VF & VL

The most manoeuvrable four-wheel lift trucks in the market

The VF and VL four-wheel electric truck, features Yale's cutting-edge extended steering-axle

What is it?

- A unique, state of the art, customised steer-axle with increased articulation of the steer wheels, allowing the lift truck to turn in smaller spaces than a four-wheel counterbalance truck with a conventional steer-axle.

How it works

- The limited rotation of a conventional axle causes the lift truck to pivot about a point outside of the front drive wheel. The extended steering-axle allows the steer tyres to rotate through a full 180°, and when combined with the dual drive front axle, allows the truck to pivot about a point near the centre of the front axle. This results in a significantly reduced turning radius allowing the truck to work in reduced aisle widths compared to traditional steer axle designs.





VL model illustrated

How customers benefit

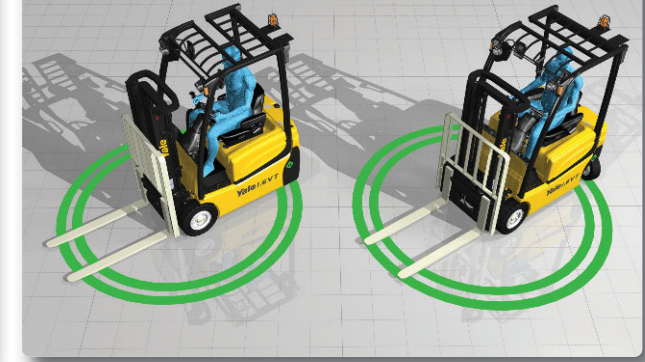
- Compact design works in the narrowest aisles maximising the use of precious floor space
- Extended steering-axle maximises floor space utilisation
- Provides class-leading aisle turning radius when carrying a euro pallet (800mm x 1200mm)
- Provides a class-leading turning radius – for example, the VF has a turning radius comparable with that of a three-wheel truck - the difference in the aisle turning radius of Yale's 1.5 - 2.0T three



VL model illustrated

and four-wheel medium wheel base trucks is just 79mm.

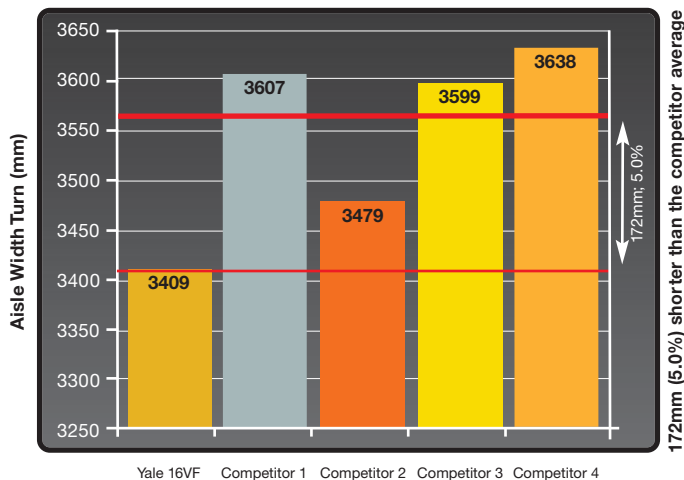
- **Ride Control** - Operators generally prefer the ride of four-wheel counterbalance forklifts, especially over longer travel distances and uneven or potholed ground conditions. The VF allows this choice whilst maintaining leading manoeuvrability (AST 4).
- With its high performance and ability to operate effectively in outside applications, over longer travel distances and uneven surfaces, the VL



series offers customers with internal/external application needs a viable alternative to ICE counterbalance forklifts, in applications where environmental considerations are important.

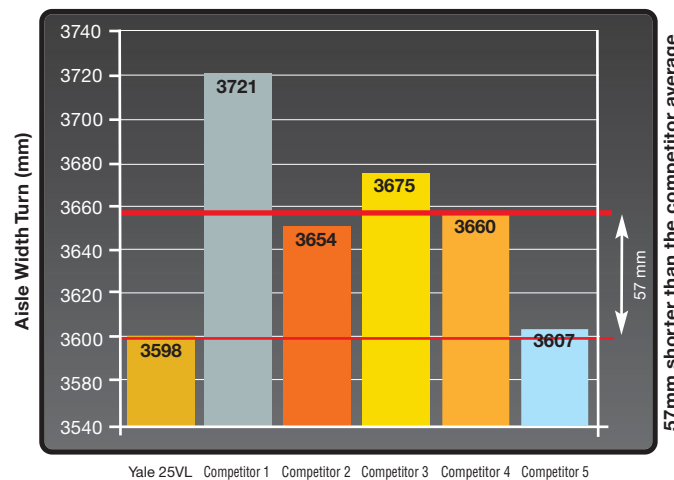
- The extended steering-axle provides significantly improved manoeuvrability over conventional four-wheel truck axles. As a result, operators have been found to experience reduced muscle strain which can increase productivity in applications that involve frequent turns and manoeuvring.

VF Manoeuvrability



Test results based on comparison of Yale 16VF (medium wheelbase) vs. similar competitive models.

VL Manoeuvrability



Test results based on comparison of Yale 25VL (short wheelbase) with 620Ah battery vs. similar competitive models.



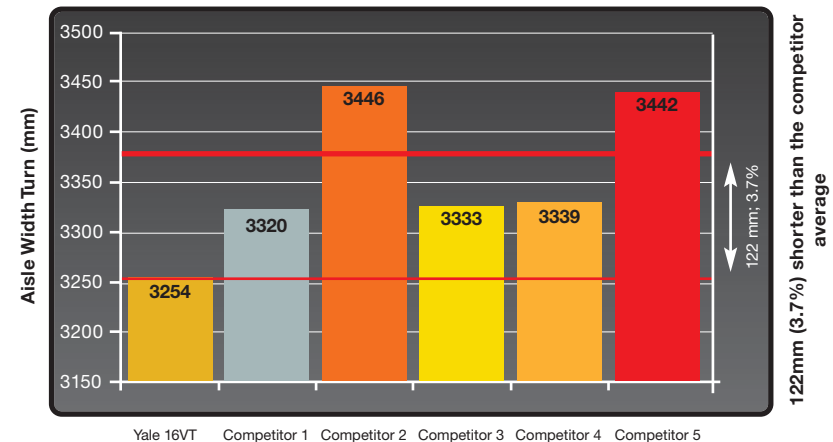
VT

Class-leading manoeuvrability among three-wheel trucks

Yale VT trucks provide best-in-class manoeuvrability over the full range of 1500kg to 2000kg.

- Compact design ideal for narrower aisles application
- Provides class-leading aisle turning radius when carrying a euro pallet (800mm x 1200mm).

VT Manoeuvrability



Test results based on comparison of Yale 16VT (short wheelbase) vs. similar competitive models.



Cost of Operations

High standards, low lifetime operation costs

When considering the lowest lifetime operating costs, periodic maintenance, unscheduled repairs, replacement parts and ever-increasing energy costs have to be taken into consideration. The initial purchase price of a truck can represent a fraction of the overall cost. That's why Yale engineers have designed the Electric Range with world-class serviceability and industry-leading reliability built in, to ensure lifetime operating costs are consistently low.

“When I’ve purchased a truck, I want reassurance it won’t cost me a fortune in servicing, fuel costs and repairs.”

Mr. Jochen Meier – Director General Huppertz ASC



VF model illustrated

Yale has always taken great pride in manufacturing trucks engineered to withstand the most arduous of applications.

Yale trucks provide outstanding reliability and ensure costs of operations remain low.

VF model illustrated

Examples include:

- AC traction and pump motors: No brushes, commutator or contactors means minimal service is required
- High thermal capacity means that motors are protected against overheating in demanding applications.
- Transmissions are sealed for life, with a transmission oil change only being required every 4000 hours
- 'Maintenance-free', oil-immersed disc brakes as standard, with servicing only required every 4000 hours.
- Hall-effect sensors replace potentiometers and micro switches, so there's no longer any mechanical or moving part switches, increasing reliability and dependability
- Steel side covers provide resistance to impact damage and general wear and tear
- LED lights option: Rear light clusters and work lights provide longevity for reduced replacement costs.

100% AC Truck

Ultra high-performance motors deliver optimised load-handling efficiency in the toughest of applications

- Dual 5kW (VT/VF) or 10kW (VL) front-wheel AC drive motors for outstanding performance
- Class H thermal capacity insulation for the harshest of applications
- Powerful acceleration and regenerative braking allows for fast changes in direction
- 12kW (VT/VF) or 16kW (VL) high performance AC hydraulic pump motor for maximum output and reliability.

Lift truck speeds

Keep up with ever-increasing workloads

- Yale Electric lift trucks are among the fastest in the industry: VT & VF - 16km/h; VL – 18km/h
- Travel speeds can be set lower by a Yale service technician on request.





VL model illustrated

The balance of performance and energy consumption

Yale Electric trucks deliver the 'e-balance' of performance and energy consumption by offering a choice of performance settings - 'eLo' (Energy Low) or the 'HiP' (High Performance).

The settings are selected by a service technician with an access code through the overhead display, and each one offers four performance modes, which can be selected by the operator according to needs of the application.



VL model illustrated

Energy efficiency: Energy Low (eLo) setting

- Offers low energy consumption whilst delivering better productivity than the competition.
- Provides a balance between truck performance and battery shift life
- Lower than maximum speed acceleration and hydraulic performance to optimise battery life
- Truck acceleration varies with load
- Energy consumption is lower with competitive performance.
 - The VT uses 16% less energy than the competitor average to move the same number of pallets.
 - The VL Value truck moves 7.5% more loads than the competition whilst using 11% less energy on the same productivity cycle.

High Performance (HiP) setting

- Maximises speed, acceleration and hydraulic performance of the truck
- Truck performance will not vary with the amount of load
- Grade and climbing speed are also increased
- Ideal for high productivity applications that require high gradeability and acceleration performance.
 - The VL Value truck moves 9.0% more loads than the competition whilst using 2% less energy on the same productivity cycle.

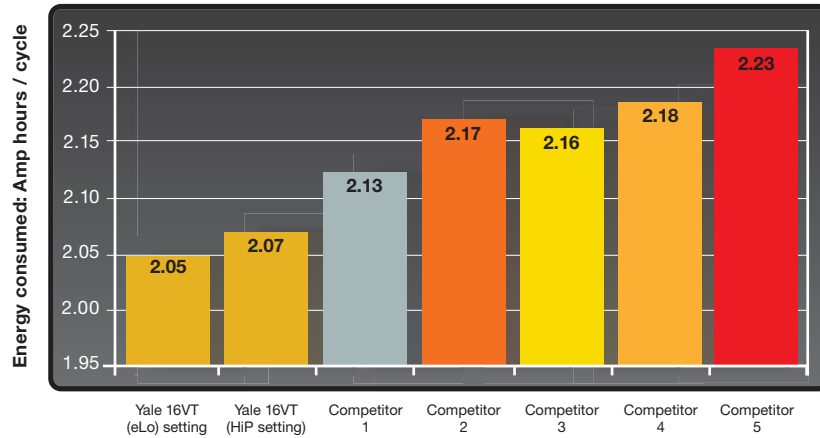
When set on the Value model the VL series has the best energy balance on the market – the balance of high productivity and low energy consumption.

The most energy efficient forklift trucks

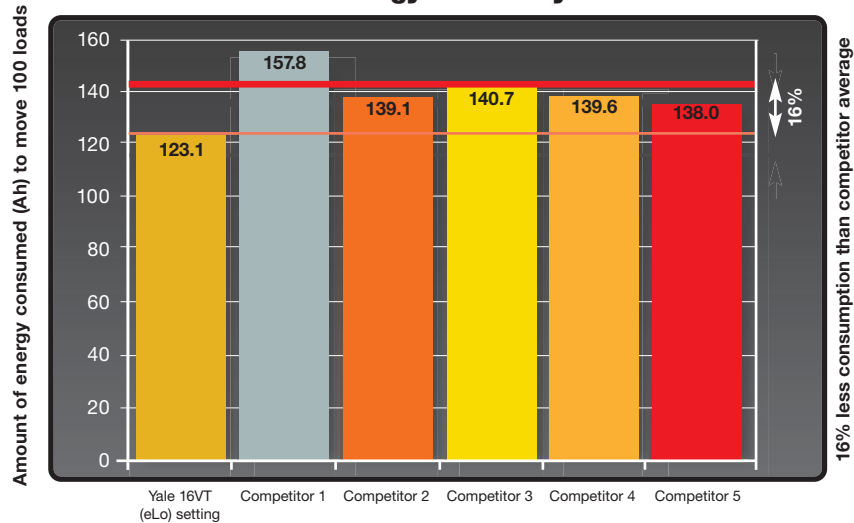
Delivering the perfect balance of productivity and energy consumption

According to the VDI 2198 standard test, Yale Electric trucks provide class-leading energy consumption in the eLo and HiP settings.

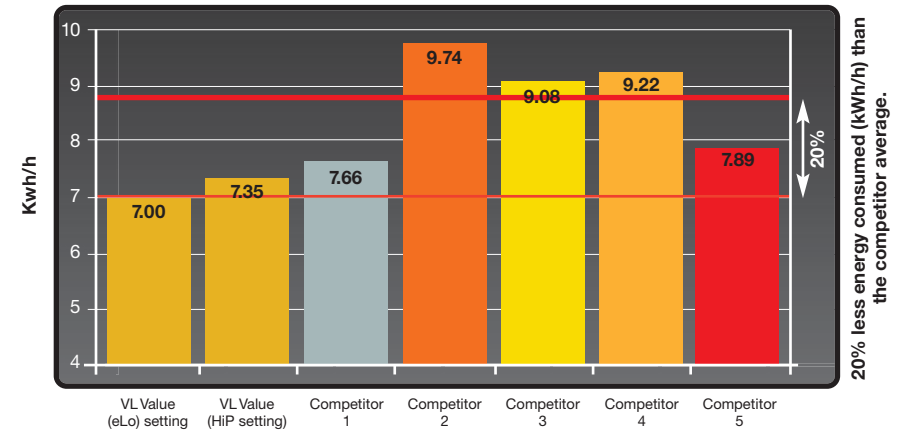
VT VDI 2198 Test Cycle



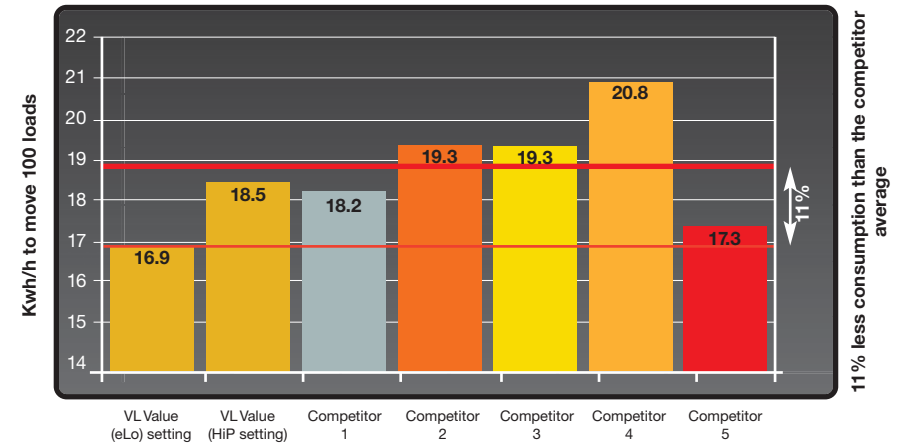
VT Energy Efficiency



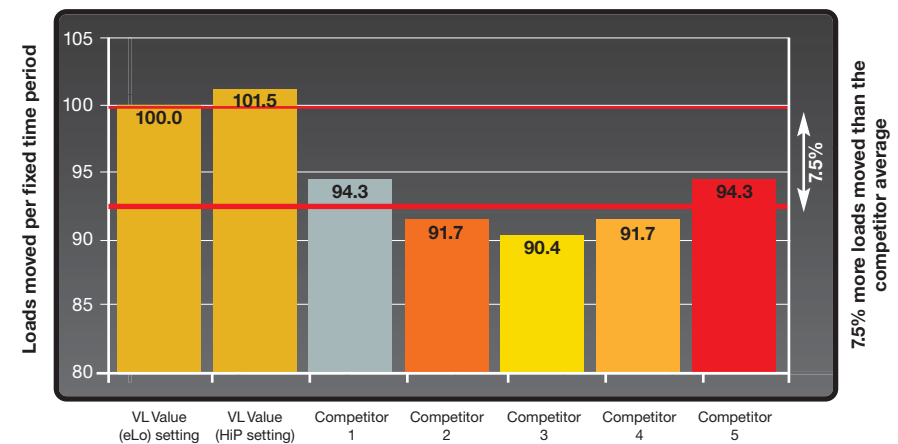
VL VDI 2198 Test Cycle



VL Energy Efficiency



VL Productivity



*Width of red line indicates amount of variation in tests.

Serviceability

Setting the standard in service

Yale Electric trucks have been designed with intelligent on-board diagnostics and CANbus technology, which increase first-time fixes and significantly reduce the need for repeat service visits.

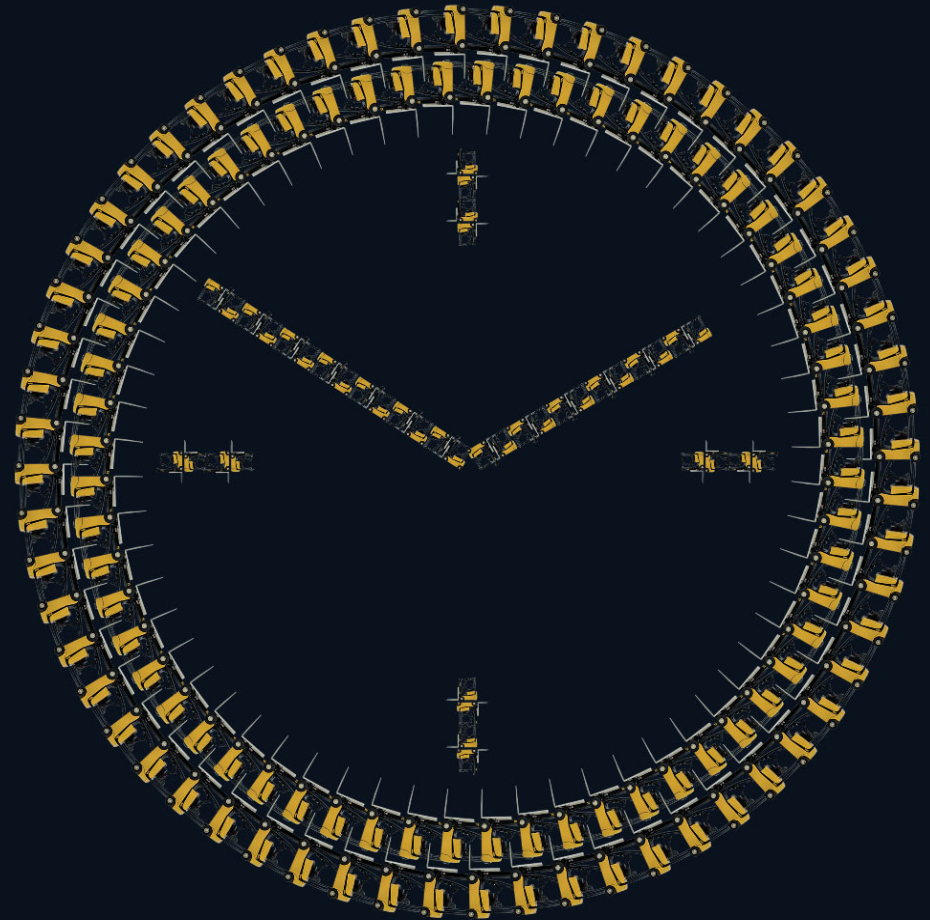
Dealer support

Yale works in partnership with its network of independent Dealers, offering customers the knowledge and expertise to assist them determining the right solution to their materials handling needs.

This process includes an assessment of operational requirements by accredited personnel; ensuring customers receive the appropriate solution for their specific application.

The Yale Dealer network is proud of its service organisation, which is the most responsive in the industry, delivering after sales support that ensures that the maximum uptime for its customers is maintained. This is achieved through enviable 'first fix' rates and response times.

With excellent geographical coverage, flexibility and professional support, purchasers of new Yale equipment can be confident that their operational costs can be lowered and profitability increased.



“My warehouse is only effective when everything runs like clockwork. That’s why I need to know that servicing my trucks is as quick and easy as possible.”

Mr. Rainer Weixler – Production Director,
Weidenhammer Packungen GmbH & Co KG



Yale Electric trucks feature industry-leading serviceability

On-board diagnostics

Accessed through an icon-driven menu on the large easy-to-read heads-up display, the on-board diagnostics make it easy to facilitate first-time fixes, maximising uptime.

CANbus communication

Facilitates easier and more accurate diagnostics while keeping wiring complexity to a minimum.

Individual controllers

For each of the drive motors and the hydraulic pump-steer unit means the high expense of replacing ‘combi-controllers’ is avoided.

Easily removed drop-in hydraulic module

Hydraulic tank, filter, pump, motor and controller are in one place and are easily accessible by removing the rear cover.

1000-hour service intervals

Long service intervals with hydraulic fluid change at 4000 hours.

Side battery extraction option

Quick and effective, user-friendly battery changing

Side-extraction is available across the VT, VF and VL series and features:

- Quick battery changing in minutes
- An ergonomic and efficient alternative method to hoisting or slinging
- One person operation
- Easily removable lightweight side cover
- Manual or power-assisted solutions are available.

