



Automotive



Beverages



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Retail



Wood

## Lithium-ion battery for ERP15-20VT and ERP16-20VF



Yale® Lithium-ion (Li-ion) batteries and matched chargers will allow you to streamline your energy requirements for battery-driven forklift trucks and warehouse equipment.

Such technology is increasingly becoming the solution of choice for materials handling equipment in extended or multi-shift applications.

Li-ion batteries can lower your overall cost of ownership and improve your energy efficiency.

Yale now offers Li-ion batteries for the ERP15-20VT and ERP16-20VF forklift trucks as an integrated solution.



Li-ion

### Applications

- Particularly suited for intensive and high throughput operations.
- A single Li-ion battery can replace multiple sets of batteries and release space used for charging.
- Food and pharmaceutical industries will benefit from the reduced risk of chemical spillage.
- Other industries, such as automotive, retail and logistics, will benefit from the use of a single battery for a multi-shift operation.

### Battery capacities and chargers

The Li-ion batteries capacities available for the ERP15-20VT and ERP16-20VF trucks are 300Ah, 400Ah (ERP15-16VT trucks only), 450Ah and 600Ah.

Yale offers a range of chargers matching the different available Li-ion battery capacities offering 1 hour, 2 hour or 4 hour charging.

Li-ion battery capacity	Approximate charge time (hours)		
	Low	Standard	Fast
300Ah	4.2	2.0	1.0
400Ah	<3	<2	<1
450Ah	3.5	<2.0	1.0
600Ah	4.0	<2.0	1.2

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## Product & Industry Solutions



## Benefits

### Excellent charging capabilities

- Convenient opportunity charging with no adverse impact on battery life.
- No battery exchange process required, resulting in more uptime.
- Li-ion batteries charge faster than traditional batteries and rapid charger options are available.
- External charge sockets included in the integrated 48V Li-Ion offering allow easy and quick connection for rapid charging.

### Emission and maintenance free

- Fully sealed battery (IP54), resulting in no acid spills or contamination.
- No sulfation issues can occur and no equalisation charge is required.
- Free of gaseous emissions. No ventilation required during charging.
- Lower CO<sub>2</sub> footprint compared to traditional batteries.
- Reduced maintenance costs as topping up of water is not required.

### Advanced battery technology

- The Li-ion chemistry used on the Yale ERP15-20VT and ERP16-20VF trucks is lithium iron phosphate (LFP).
- With over 3750 cycles (at 80% discharge) the Li-ion battery has three times the life of a lead-acid battery.
- Li-ion batteries and chargers are inherently energy efficient. Compared to lead-acid batteries, savings up to 30% in energy costs are possible.

### Integrated solution with CANbus communication

- Truck battery discharge indicator displays the state of charge of the Li-ion battery.
- Lift lock out functionality prevents over discharge during operation.
- Integration includes error reporting on truck and controlled truck shutdown, if a critical battery fault should occur.
- Matched battery and charger communicate via CANbus before and during the charge cycle to optimize battery performance and life.

**60 months/10,000hr battery warranty is offered when used with recommended charger.**

## Comparison of Lead Acid and Li-ion Battery Features

	Lead Acid	Li-ion
Cycles (80% DOD)	1200	3750+
Charge temperature (°C)	Above 0°C	Above 0°C
Recommended operating temperature	0 to 35°C*	0 to 35°C*
Recharging time	6-12hr	1-4hr
Opportunity charging	No	Yes
Equalising charge	Required	Not required
Maintenance	Medium/high	Annual inspection
Initial cost (incl. charging equipment)	Low	Medium/high
Total cost of ownership in suitable applications	High/medium	Medium/low
Emissions	Gassing during charging	No emissions

\*Consult Yale for freezer/cold room applications