

Industry Sectors



Automotive



Beverages



Chemical



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Metals



Paper



Retail



Wood

## Lithium-ion battery for MP16-20



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 MP16-20 powered pallet truck as an integrated solution.



### Applications

- Particularly suited for light to medium applications with intermittent use, such as dock work and unloading delivery vehicles.
- Opportunity charging of the truck can take place between loading and unloading trailers.
- Charging of the truck can be conveniently located next to the loading area.
- 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 battery capacity available for the MP16-20 truck is 56Ah.
- Yale offers a 20 amp on-board high frequency (HF) charger with conventional plug.

Li-ion battery capacity	Approximate charge time (hours)
	On-board charger
56Ah	<3



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## Benefits

### Excellent charging capabilities

- Convenient opportunity charging with no adverse impact on battery life.
- Li-ion batteries charge faster than traditional batteries reducing the energy consumed.
- On-board 20A HF charger with 230V conventional plug for opportunity charging for which no additional infrastructure is required.
- Battery change-overs can be eliminated, saving travel, as well as handling-time.

### Emission and maintenance free

- Fully sealed battery resulting in no acid spills or contamination.
- No sulfation issues can occur and no equalization 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 MP16-20 truck is nickel manganese cobalt (NMC).
- Thanks to the high energy density, the Li-ion battery is lighter than a lead-acid battery, making the overall weight of the truck lower, with improved manoeuvrability.
- With 4000 cycles (at 80% discharge) the Li-ion battery has three times the life of a lead-acid battery.

**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)	1200-1600	4000
Charge temperature (°C)	Above 0°C	Above 0°C
Recommended operating temperature	5-40°C*	5-40°C*
Recharging time	6-8hr	<3hr
Opportunity charging	No	Yes
Equalising charge	Required	Not required
Maintenance	Medium/high	Only annual inspection
Initial cost (incl. charging equipment)	Low	Medium
Total cost of ownership in suitable applications	High/medium	Medium/low
Emissions	Gassing during charging	No emissions

\*Consult Yale for freezer/cold room applications