



LITHIUM BATTERIES FOR MATERIAL HANDLING INDUSTRY



oneCharge = Savings + Convenience

oneCharge is the developer and manufacturer of energy-efficient solutions based on lithium batteries. Our technology allows you to save on battery operation. In 2012, our company developed an active battery management system (BMS) that transfers energy between cells, thus significantly increasing lifetime and available power of the battery.

LITHIUM BATTERY ADVANTAGES

Lead-acid battery

Lithium battery

In-house or outsourced maintenance personnel



No maintenance cost

MAINTENANCE

2 or more batteries per truck

8-10 hours



2 hours

1 battery per truck

CHARGE DURATION

Lower fleet availability due to work interruptions for charging



100% fleet availability due to opportunity charging

MEMORY EFFECT

Periodic battery replacement

1500 cycles



3000 cycles

No need to buy replacement batteries

SERVICE LIFE

Build-up of an expensive battery room



No need to build a battery room

DANGEROUS SUBSTANCES

Power loss



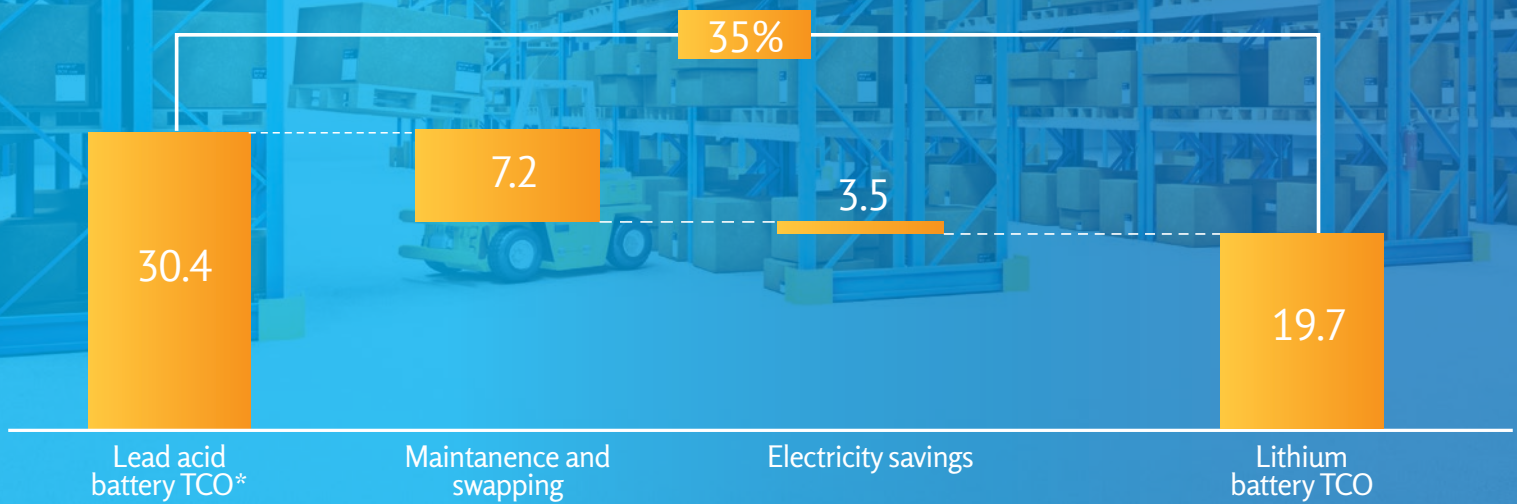
Energy savings by 15%

POWER SAVINGS

INTRODUCTION OF LITHIUM BATTERIES REDUCES TOTAL COST OF OWNERSHIP (TCO) IN HALF

FOR A FLEET OF 30 LIFT TRUCKS, THE TOTAL SAVINGS ARE \$430 000 OVER 4 YEARS COMPARED TO LEAD-ACID BATTERIES, GIVEN IDENTICAL CAPITAL EXPENDITURES

Savings potential for the total cost of ownership, based on one forklift*

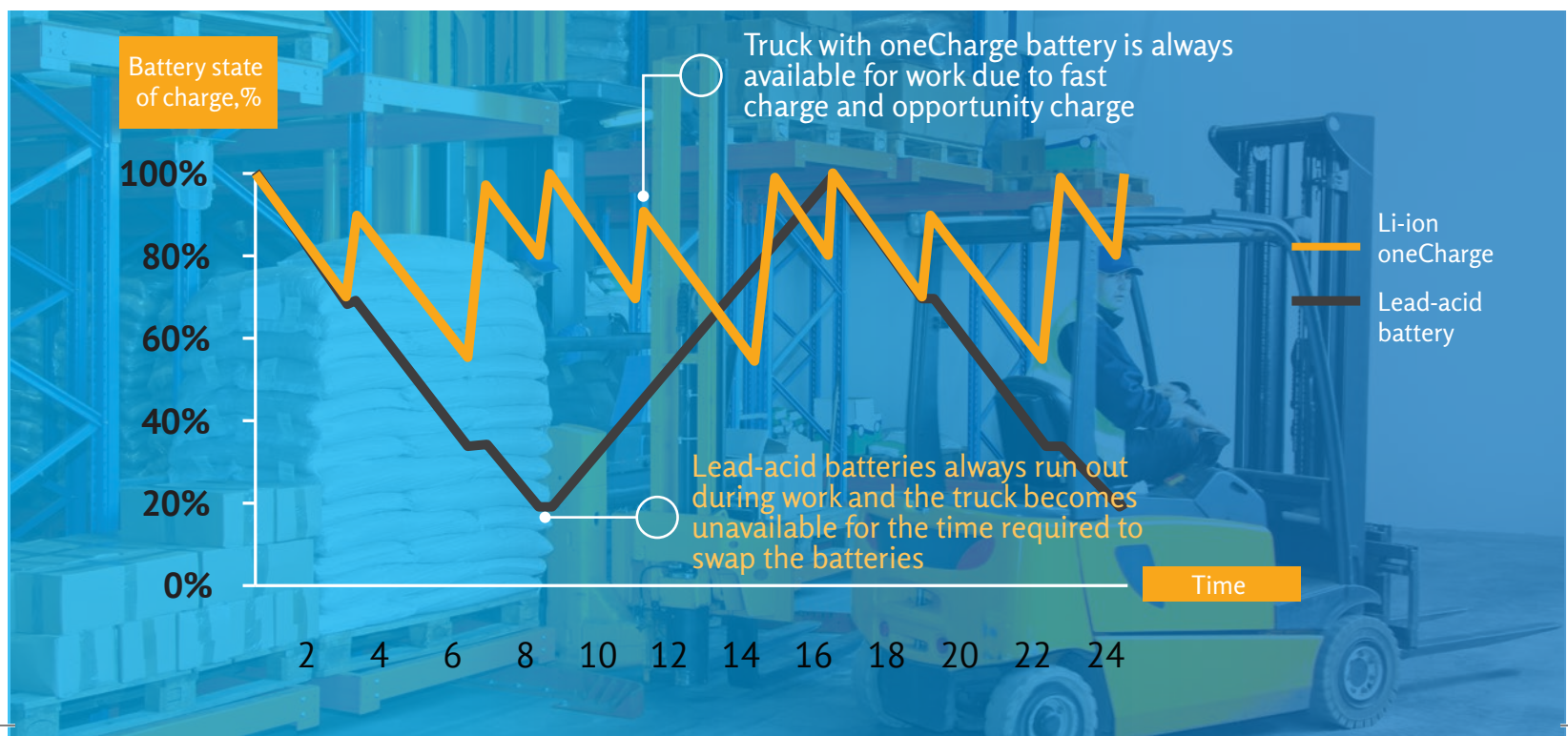
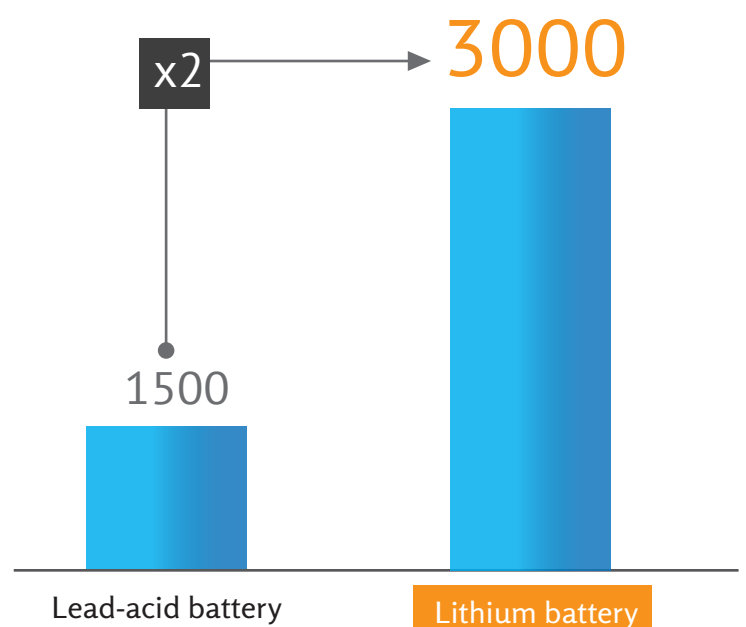


oneCharge lithium battery lifetime is 3000 charging
discharging
cycles that is

2 TIMES MORE

than the lead-acid battery

oneCharge lithium battery lifetime is 3000 charging/discharging cycles that is 2 times more than the lead-acid battery.



oneCharge Active battery management system

embodies

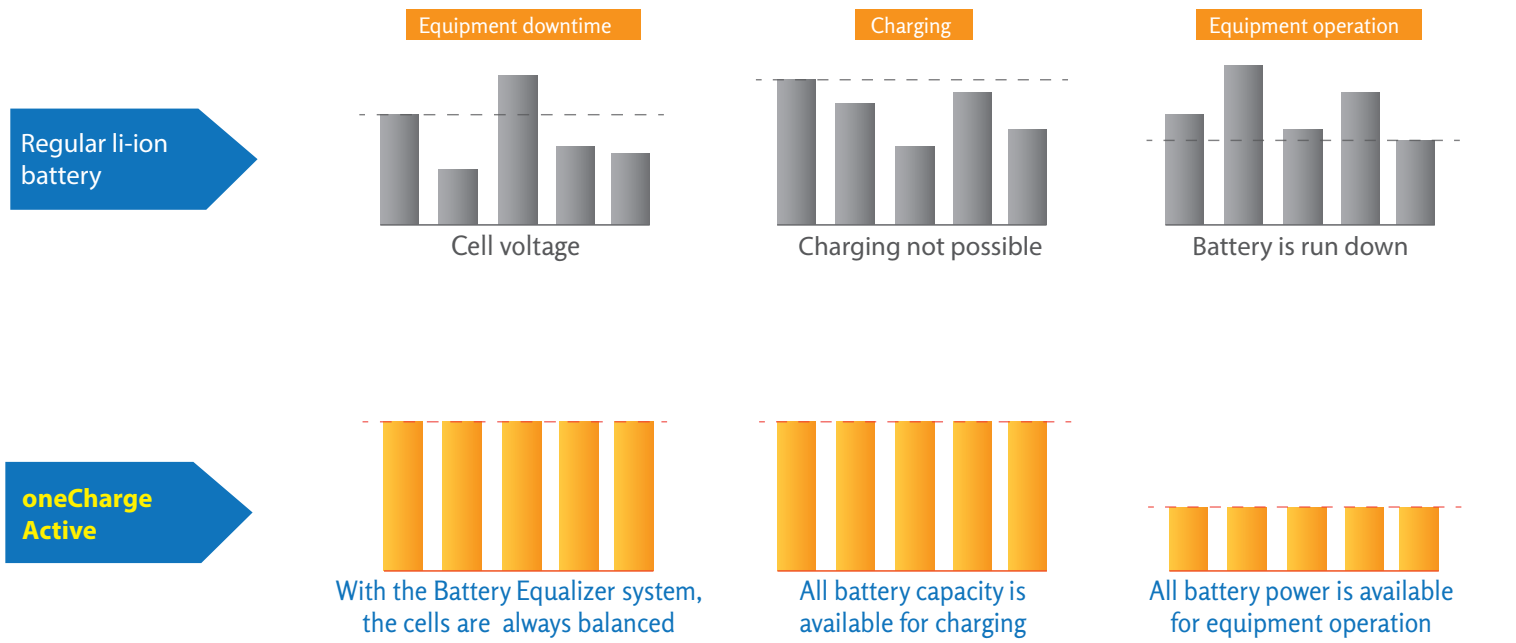
A NUMBER OF UNIQUE

TECHNICAL SOLUTIONS

Solution	Function	Effect
Battery Equalizer system	Actively transfers power between cells, equalizes voltage	<ul style="list-style-type: none">Increases available capacity without increasing battery costReduces full charge time to 1.5 hours
Virtual cell effect	Supports weak or fully discharged cell using other cells	<ul style="list-style-type: none">Assures battery function even if some cells have malfunctioned
Energy-saving mode	Minimizes power consumption of all electric systems during battery down time	<ul style="list-style-type: none">Battery does not run down during storage (for several months)Self-discharge of no more than 3% per month
Solid State Contractor	Disconnects current flow from charger and to truck under maximum load up to 1 million times	<ul style="list-style-type: none">Ability to use existing chargersComplete battery protection

HOW THE BATTERY

EQUALIZER WORKS





oneCharge batteries

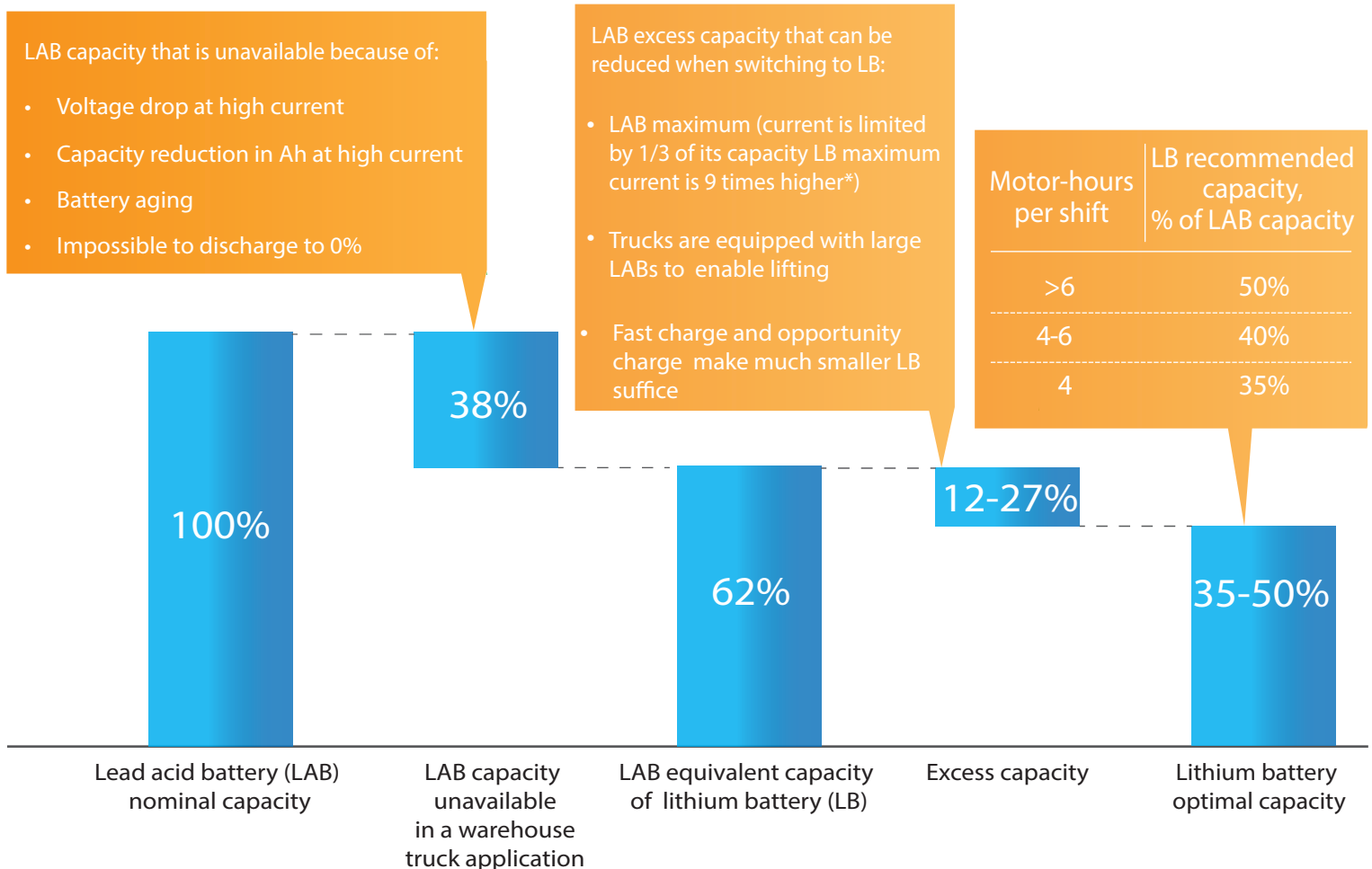
DO NOT NEED

special charge conditions

As lead-acid batteries emit explosive hydrogen when charging and because of sulfuric acid spills during replacement, lead-acid battery operation requires battery room equipment.

oneCharge lithium batteries can be charged in any part of the warehouse and do not need battery room and equipment for replacement.

oneCharge lithium battery requires much less capacity to do the same work.



Battery example, (Ah)

775

480

270-400

Chargers



oneCharge batteries may be charged using a wide range of chargers by Power Designers, EcoTech and others. These chargers support 24-, 36-, 48- and 80-volt batteries.

oneCharge batteries

SPECIFICALLY DESIGNED FOR

WAREHOUSES



Compliance

All oneCharge batteries are equipped with ballast, so their weight exceeds the minimum weight requirement



Complete battery line for all truck types

Battery voltage range, (V) - 24-80
Battery capacity range, (Ah) - 100-1200



Protection

- Automatic truck shut-off while connected to charger
- Completely maintenance-free
- Protection from:
 - Over voltage
 - Under voltage
 - Over limit current
 - Overheating
 - Freezing



Convenience

- One motion charging
- Charger automatically switches on when the charger plug is plugged
- Charger automatically switches off when the charger plug is unplugged



oneCharge FROST

oneCharge engineers developed the Frost battery designed specifically for work in cold storage warehouses. The distinguishing feature of this battery is its insulated enclosure, which protects the lithium cells from the effects of low temperatures. oneCharge Frost is safe and environmentally friendly solution for food products.

OPERATING TEMPERATURES



Battery may be used at ambient air temperatures ranging from -31°F to + 104°F



Battery may be charged at temperatures ranging from -31°F to + 104°F



Battery must be stored within a temperature range of 0°F to + 104°F

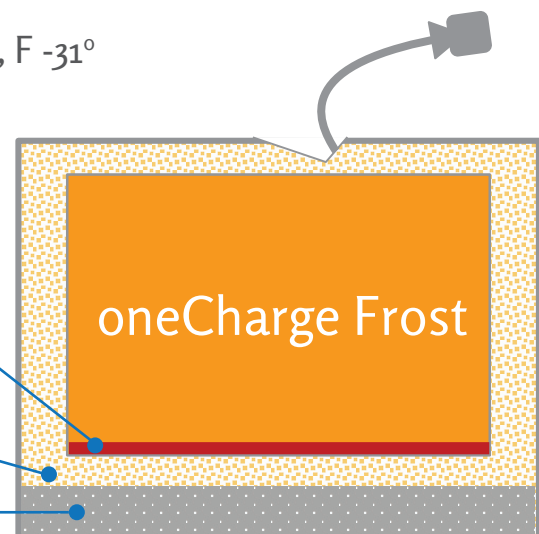
oneCharge Frost is designed specifically FOR COLD STORAGE

Ambient temperature lower limit of battery operation, F -31°

Battery heater ○

Insulation ○

Ballast ○



ONECHARGE



PROJECTS GEOGRAPHY



Constellation
Brands



mazda



DELICATO FAMILY VINEYARDS
FAMILY FARMED SINCE 1924 • NAPA VALLEY, MONTEREY, LODI

P&G



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