



## CASE STUDY

### Custom Lithium-ion Battery Packs for Forklifts

Learn from our customer's experiences why you should have long-term peace-of-mind with Frey-Made lithium-ion batteries

## BUSINESS NEEDS

**"After 13,000 hours, capacity still over 80%!"**

In 2015, the world top beverage packaged company China region needed the fleet of forklifts to work 3-shifts a day to deal with its market growth spike in China. They were looking for a lithium solution to lower the cost by eliminating fleet amount, reducing battery maintenance cost.

**"Not a single issue reported since the day of service!"**

In 2018, Doosan China was looking for a reliable lithium manufacturer for their OEM forklifts to keep them on top of the market. Because the battery will be the OEM part, they require much higher standards than the replacement market does.

**"The constant discharge rate can truly meet 2C!"**

In 2015, Toyota Beijing Dealer was looking for a high power lithium solution for its 3Ton Toyota Forklift. Most of the lithium battery manufacturer made the lithium battery pack with standard output rate of 1C, but they were looking for 2C rating.

## Why Should Forklift OEMs Choose Frey as Their Lithium-ion Battery Pack Partner?

- 10 years' experience in industrial heavy-duty electric vehicles and machines
- Built with In-house made industrial leading high-power output nanometer LFP cells
- Long cycle life of over 3,000 times at 80% depth of discharge
- Frey battery-driven lift trucks operate more efficiently, loading heavier and running longer than average lithium-ion battery driven counterpart.
- Extremely safe, the packs are made explosion-proof
- In-house designed BMSs for massive packs and small to medium packs
- Custom gauge of various critical metrics, software integration, GPS monitoring
- Military-level rugged case design with IP67 level available
- Competitive Price compared with battery pack assemblers

## RESULTS

- Frey's Lithium Pack put into service in 2016
- Daily working hours are more than 20 hours
- Up until 2021.6, each forklift has an average service hour of 13,000 hours, a service life of over 5 years
- Remaining capacity still over 80%

- Frey's Lithium battery put into service since 2018
- Daily working hour is more than 10 hours
- Up until 2021.6, each forklift has average service hours of 9,870 hours
- Not A single operational issue was reported ever since
- Remaining capacity over 85%

- Frey customized the lithium battery with constant discharge rate of 2C, with peak rate of 10C. It meets customer's requirement
- Until 2021.6, the average service of each battery is over 5 years

*All the data was obtained from Frey Remote Cloud System*

