

**WHEN  
RELIABILITY IS  
EVERYTHING...**



# LI-ION vs LEAD ACID

Mitsubishi Forklift Trucks offers a wide selection of battery solutions and chargers.

Our experts can work with you to assess your applications and site to help you find the right technology for your business.

In the meantime, check out our quick battery guide.

## CONSIDERATIONS WHEN CHOOSING A BATTERY:

- Application/load (heavy or light duty)
- Truck type
- Shift lengths
- Battery exchange facilities
- Charging requirements
- Facility limitations (mains connectors, available space)
- Site layout e.g. frequent use of ramps

## COMMON BATTERY TYPES

### LI-ION



Li-ion is a relatively new battery technology that is commonly found in electronics and has recently become a viable tool

for electric forklifts.

In a Li-ion battery cell, electrolytes move between a positive electrode and a negative electrode through a separator.

### LEAD ACID

Lead acid batteries include cells with an electrolyte mixture, water and sulfuric acid.



#### DID YOU KNOW?

A forklift is constantly extracting energy from a battery – whether its accelerating, lifting or lowering – so battery characteristics vary from that of an electric car.

## IMPORTANT FACTORS

	LI-ION	LEAD ACID
<p><b>MAINTENANCE</b></p>	<ul style="list-style-type: none"> <li>● Sealed</li> <li>● Maintenance free - no water filling required</li> <li>● Performance data can be gathered from the Battery Management System</li> </ul>	<ul style="list-style-type: none"> <li>● Risk of gas/acid leak</li> <li>● Requires maintenance and topping up with water</li> <li>● Maintenance can be expensive</li> <li>● Poor maintenance can lead to added repair costs</li> </ul>

	LI-ION	LEAD ACID
<p><b>CHARGING</b></p>	<ul style="list-style-type: none"> <li>● Perfect for opportune charging on coffee or lunch breaks</li> <li>● May provide enough power for 2 or 3 shifts</li> <li>● No harmful gasses so can be charged anywhere</li> <li>● Full capacity of battery can be used</li> <li>● No need for spare batteries</li> <li>● Fast charging</li> </ul>	<ul style="list-style-type: none"> <li>● Requires careful monitoring of capacity and full charging each time for optimum battery life</li> <li>● Handling requires Personal Protection Equipment</li> <li>● Requires a designated, ventilated area</li> <li>● Charging areas take up valuable space on site</li> <li>● Large and heavy to move</li> <li>● Requires frequent battery changes</li> </ul>



Li-ion = good for multi-shift operations, in typically larger high frequent operations and industries

Lead acid = good for single shift operations, in typically smaller and low frequent companies

	LI-ION	LEAD ACID
<p><b>BATTERY LIFECYCLE</b></p>	<p><b>5000</b> capacity cycles</p>	<p><b>1500</b> charging cycles (300 per year for 5 years)</p>



Clean Li-ion batteries are ideal for sensitive environments such as food or packaging industries.

### 30% more efficient

Li-ion batteries are up to 30% more energy efficient than lead acid during charging = lower electricity costs + better for the environment

## AT A GLANCE

LI-ION		LEAD ACID	
PROS	CONS	PROS	CONS
<ul style="list-style-type: none"> <li>✓ Opportune charging</li> <li>✓ Greater efficiency</li> <li>✓ Longer life span</li> <li>✓ Superior runtime</li> <li>✓ Greater capacity</li> <li>✓ Less downtime</li> <li>✓ Reduce spares required</li> <li>✓ Lower TCO</li> <li>✓ Small and lightweight</li> </ul>	<ul style="list-style-type: none"> <li>✗ Higher initial cost</li> <li>✗ Larger AC draw, from power network</li> <li>✗ Requires parking area and charging points</li> </ul>	<ul style="list-style-type: none"> <li>✓ Economically priced</li> <li>✓ Simple technology</li> <li>✓ Durable in light applications</li> </ul>	<ul style="list-style-type: none"> <li>✗ Shorter life cycles</li> <li>✗ Slow recharge</li> <li>✗ High maintenance</li> <li>✗ Dangerous to handle</li> <li>✗ Often requires spare batteries</li> </ul>

Mitsubishi Forklift Trucks offers lead acid as standard, and a wide range of our products are compatible with Li-ion, including:



**TALK TO YOUR DISTRIBUTOR TO FIND OUT WHICH BATTERY IS RIGHT FOR YOUR APPLICATION.**