

Electric Forklift

Used Electric Forklift Riverside - By definition, an electric forklift is a forklift truck which derives its power from an electric motor rather than an internal combustion engine. The electricity is sourced from either internal industrial batteries or fuel cell. If internal batteries provide the electrical source, the batteries can be recharged by joining the battery to something electrically compatible. Rechargeable battery options include lithium-ion or lead-acid. Producing electricity with a fuel cell is similar to using a battery source; however, the fuel cell needs refueling and will not be recharged from connecting to anything electrical. Electrical forklifts perform the same types of jobs as internal combustion engine forklifts. Both models utilize two power horizontal forks to load, transport and unload items. The source of power is the main difference between an internal combustion engine and an electrical forklift model. Typically, electric forklift models are used indoors in warehouses and similar facilities that cannot rely on internal combustion engines due to interior air quality.

Electric Forklift Classifications

The electric forklift truck can fall into one or more forklift truck classifications. They are:

1. **Class 1: Electric Motor Rider Trucks** These forklifts can have pneumatic or cushion tires. Pneumatic tires are used on forklifts primarily operated outdoors in dry areas and on uneven surfaces whereas cushion tires are better on forklifts used primarily indoors, on smooth surfaces.
2. **Class 2: Electric Motor Narrow Aisle Trucks** The Class 2 Electric Motor Narrow Aisle Trucks are another classification. These units function within very narrow aisle locations with limited space. This design enables maximum storage space. Class 2 models feature a modified design to limit the amount of space the forklift takes up.
3. **Class 3: Electric Motor Hand or Hand-Rider Trucks** These forklifts are hand-controlled, which means they do not ride on the forklift but rather is positioned in front of the forklift. The operator controls the forklift using a steering tiller.
4. **Class 6: Electric and Internal Combustion Engine Tractors** The Class 6 Internal Combustion Engine and Electric Tractors are another lineup. This category includes forklifts that can be utilized for many jobs. The electric units may be used in exterior applications in dry situations and also function well indoors.

A list of forklift trucks that are typically powered by electricity are:

Sources of Electricity for Electric Forklifts

Mostly, electric forklift models are used for interior applications on even, flat floors. Battery-powered forklifts are better suited for interior jobs as they do not emit poisonous gases; making them ideal for food-processing and healthcare applications. Fuel cell powered forklifts also produce no local emissions and are often used in refrigerated warehouses because, unlike batteries, their performance is not reduced by the lower temperatures.

Lead-acid battery

Lead-acid batteries are the most commonly used type of rechargeable battery. Their capacity to supply high current surges allows for a significant ratio of power-to-weight. These affordable models consistently make lead-acid models popular batteries for electrical forklifts. It's important to know that lead-acid batteries can possibly freeze during frigid temperatures and this type of battery requires on-going maintenance.

Lithium-ion Battery

A Li-ion or lithium-ion battery is a different kind of rechargeable battery commonly used in electric forklift models. The main drawback of lithium-ion batteries is that they can be a safety hazard since they contain a flammable electrolyte that, if incorrectly charged or damaged can cause explosions and fires. Additionally, Li-ion batteries cost more compared to lead-acid batteries initially; although they need zero maintenance and provide better efficiency compared to lead-acid batteries. The Li-ion batteries can function with a broader temperature range compared to lead-acid batteries.

Fuel Cell Forklifts

With fuel-cell power showcase the benefits of both battery-operated forklift trucks and internal combustion models. Similar to battery-powered forklifts, there are no local emissions delivered from fuel cell models. One disadvantage is that fuel cell power efficiency is 40 to 50 percent which is about half the efficiency of lithium-ion batteries. Fuel cell power offers better energy density and provides electric forklift trucks to run longer. The fuel cell models perform better in colder environments compared to lithium-ion batteries. For this reason, fuel cell powered forklifts are often preferred for use in colder temperatures, such as refrigerated warehouses.

Different from batteries, fuel cells

rely on refueling with a fuel source to create an electrical current. While rechargeable batteries take a long time to recharge, fuel cells can be refilled in roughly three minutes. It is beneficial for businesses that rely on many forklifts that operate numerous shifts to use fuel cell models since they don't have the same downtime for charging batteries. Pros and Cons of Electrically Powered Forklifts

Advantages of Electric Forklifts

When a lift capacity doesn't have to be greater than 12,000 lbs. electric forklift trucks are often a better option compared to combustion engine forklift trucks. Of course, there are many considerations to decide if the electric forklift model is the best choice for a particular application. It is essential to discover the pros and cons of one forklift type to another prior to choosing a model. Certain advantages of the different types of forklift models are discussed below.

1. Battery-powered electric forklift models have lower operating costs due to the increasing cost of fuel required constantly by internal combustion models.
2. The price of electricity is usually more stable and predictable than combustible fuel. This makes electrical forklifts a benefit when considering budget needs for projected operating expenses.
3. There are recharging stations for battery-powered electric forklift. This system eliminates the necessity for fuel storage and transportation for both the machine and the worksite.
4. Electrical forklifts, both battery and fuel cell powered, produce no emissions or noise pollution. The only exception to this is the noise associated with the necessary back-up alarm. However, that is characteristic of internal combustion engine forklifts as well.
5. Operator equipment and fatigue is reduced in electric forklift models thanks to the automatic braking technology.
6. There are longer intervals between maintenance requirements for electric forklifts compared to internal combustion models due to less moving parts used by a battery-powered or a fuel cell unit.

Disadvantages of Electric Forklifts

For a variety of reasons, electric forklifts have become more popular in recent years over internal combustion models. Numerous circumstances however still prefer internal combustion forklifts. Key disadvantages of the electric forklifts in comparison to internal combustion engine are discussed below.

1. Since electric forklifts have a lift capacity of approximately 12,000 lbs. many jobs still choose to use an internal combustion model where there are heavy lifting requirements, even when they are only occasionally needed.
2. Electric forklifts rely on battery power and require recharging stations to be installed. If there are none at the facility, this could greatly increase the overall cost.
3. Batteries need to be monitored to ensure adequate timing regarding how long they are charged. This is important since battery life can be reduced if they are charged too frequently or infrequently.
4. Electric forklift trucks cost more than internal combustion engine units.
5. In some older facilities, the electrical system may need to be upgraded to accommodate an increased voltage requirement of battery powered forklifts.
6. Electric forklift trucks may need to use machinery to lift and lower the batteries into the unit during replacement due to their heavy nature.

Overall, electric forklift trucks provide numerous advantages compared to internal combustion engines however, they may not work in a variety of outdoor applications with their weight and weather restrictions.