

## Electric Forklift

Used Electric Forklift New York - An electric forklift is a forklift truck that uses an electric motor to generate power as opposed to an internal combustion model. The electricity source is derived from either a fuel cell or internal industrial batteries. Internal batteries often provide the electrical source. They are capable of being recharged by connecting the battery to a source that is electrically compatible. The rechargeable batteries are lithium-ion or lead-acid batteries. Electrical production by means of a fuel cell is similar to a battery source but cannot be recharged by connecting to an electrical source, instead requiring refueling. Electrical forklifts can do the same type of work as internal combustion engine forklifts. They both rely on two horizontal forks that are power supplied to transport and unload and load items for short distances. The only substantial difference between an electrical forklift and an internal combustion engine forklift is the source of power. Most electric forklift models are used for internal applications including warehouses and similar locations that cannot function with comprised 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

Electric forklifts are predominantly used indoors on flat, even surfaces. Battery powered forklifts prevent the emission of harmful gases and are suggested for indoor facilities, such as healthcare and food-processing facilities. 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

The main type of rechargeable battery is lead-acid batteries. Their capacity to supply high current surges allows for a significant ratio of power-to-weight. This, coupled with its affordability, make lead-acid batteries a popular option for use in electric forklift trucks. 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

Another type of rechargeable battery used in electric forklift trucks is lithium-ion or li-ion batteries. The main issue with these batteries is they contain a flammable electrolyte and pose a safety hazard if damaged or charged improperly which may lead to fires or explosions. Lithium-ion batteries are also more expensive than lead-acid batteries, at least initially. However, they provide more efficiency than lead-acid batteries and require no maintenance. Lithium-ion batteries are also able to operate over a greater temperature range with higher energy densities than lead-acid batteries.

#### Fuel Cell Forklifts

that rely on fuel-cell power feature some benefits of both internal combustion and battery-operated forklift trucks. Fuel cell-powered forklifts provide no emissions like battery-powered forklift trucks. One disadvantage is that fuel cell power efficiency is 40 to 50 percent which is about half the efficiency of lithium-ion batteries. However, fuel cell power has a higher energy density which can allow electrical forklifts to run longer. Fuel cell powered forklifts also have the advantage of performing better in lower temperatures as lithium-ion batteries. For this reason, fuel cell powered forklifts are often preferred for use in colder temperatures, such as refrigerated warehouses. Fuel cells need a fuel

source in order to create an electrical current and need refueling. However, they can be refueled in about three minutes, whereas batteries take much longer to recharge. Because of this, large operations which run several shifts and larger fleets of forklifts tend to benefit from the ability to keep the forklift operating without having to account for lengthy charging times.

### 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. Numerous factors are considered to determine if the electric forklift truck is the most accurate choice. Taking a look at the pros and cons of electric forklifts versus internal combustion engine forklifts is necessary. Specific advantages of electric powered forklift models vs. internal combustion engine models are listed below.

1. The operating costs of battery-powered electric forklifts are significantly lower compared to internal combustion models since fuel costs continue to increase.
2. The cost of electricity is more predictable and more stable compared to combustible fuel; making electric forklifts a better choice when taking budgets and operating expenses into account.
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 back-up alarm is the main exception; however, this is a normal characteristic of internal combustion forklifts as well.
5. Operator equipment and fatigue is reduced in electric forklift models thanks to the automatic braking technology.
6. Electrical forklifts have longer intervals between maintenance than do internal combustion engine forklifts. This is largely due to the fewer moving parts required in a battery or fuel cell powered forklift.

#### Disadvantages of Electric Forklifts

For many of the reasons listed above, forklifts powered by electrical means have been more popular than power by internal combustion engines in recent years. However, there are still several applications that make electrical forklifts a less practical option. Key disadvantages of the electric forklifts in comparison to internal combustion engine are discussed below.

1. Electric forklifts typically have a limited lifting capacity of approximately 12,000 pounds or less which eliminates them as an option from larger jobs. Sometimes this means an internal combustion engine forklift is chosen even for jobsites where heavy jobs are few and far between but still a requirement.
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 also require that attention be given to the timing and length of a charge. This is because the life of batteries can be reduced if charged too frequently or not enough.
4. Electric forklift trucks are also initially more expensive than internal combustion engine forklifts.
5. In some older facilities, the electrical system may need to be upgraded to accommodate an increased voltage requirement of battery powered forklifts.
6. Battery-powered units may rely on machinery to lower and lift the heavy replacement batteries during replacement.

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.