

Electric Forklift

Used Electric Forklift Simi Valley - Electric forklift models do not rely on combustion engines but use an electric motor instead. The electricity source is derived from either a fuel cell or internal industrial batteries. If the electrical source is by means of internal batteries, the batteries are rechargeable by connecting the battery to a compatible electrical source. These rechargeable batteries are lead-acid or lithium-ion battery. 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. That is, they usually use two power-operated horizontal forks to load, transport for short distances and unload materials. The source of power is the main difference between an internal combustion engine and an electrical forklift model. Electrically powered forklifts are typically used in warehouses and other indoor facilities where an internal combustion engine would cause poor air quality for workers.

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** The Class 1 Electric Motor Rider Trucks are one of the classifications. These models have cushion or pneumatic tires. Cushion tires are generally used on smooth indoor surfaces and pneumatic tires are mostly used for exterior applications.
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 Electric and Internal Combustion Engine Tractors are another classification. This includes models that can be used for broad application. The electric versions can be used outdoors in dry applications or used 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. Forklifts that rely on fuel cells produce zero emissions, making them popular in refrigerated warehouses since their performance is not affected by lower temperatures the way batteries are.

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. This, coupled with its affordability, make lead-acid batteries a popular option for use in electric forklift trucks. However, lead-acid batteries are susceptible to freezing in colder temperatures. They also require maintenance which, if ignored, can shorten the life of the battery.

Lithium-ion Battery Another type of rechargeable battery used in electric forklift trucks is lithium-ion or li-ion batteries. Explosions or fires may result in these batteries if they are improperly charged or damaged due to the flammable electrolyte they contain. 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. Another benefit is that the lithium-ion batteries can operate with a wider temperature range and better energy densities compared to lead-acid varieties.

Fuel Cell Fuel-cell powered forklifts have some of the benefits of both battery operated forklifts and internal combustion engine forklifts. Like forklifts powered by battery, fuel cell power produces no local emissions. One disadvantage is that fuel cell power efficiency is 40 to 50 percent which is about half the efficiency of lithium-ion batteries. Conversely, fuel cell power provides more energy density, translating to longer running time for electric forklift trucks. Fuel cell powered forklifts also have the advantage of performing better in lower temperatures as lithium-ion batteries. The fuel cell models are preferred for colder applications such as warehouses that are refrigerated. Fuel cells need a fuel source in

order to create an electrical current and need refueling. Fuel cells only require approximately 3 minutes to refuel instead of the much longer recharging time for rechargeable batteries. Many larger companies that have multiple forklifts in their fleet running numerous shifts benefit from using fuel cell models that can keep operating without long periods of time spent charging.

Pros and Cons of Electrically Powered Forklifts

Advantages of Electric Forklifts

Electric forklifts are often a popular choice compared to internal combustion models if the lifting capacity doesn't exceed 12,000 pounds. Of course, there are many considerations to decide if the electric forklift model is the best choice for a particular application. 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. Operating costs can be much lower for battery powered electrical forklifts because of the ongoing and often increasing cost of fuel.
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. Electric forklift trucks rely on recharging stations which eliminates the requirement of fuel transportation and storage for both the equipment and the job site.
4. Both fuel cell and battery-powered electric forklifts produce zero noise pollution or emissions. The back-up alarm is the main exception; however, this is a normal characteristic of internal combustion forklifts as well.
5. The automatic braking systems on electrical forklifts helps to reduce wear and operator fatigue.
6. Electric forklifts boast greater intervals between maintenance compared to internal combustion engine models. This is mainly because there are less moving parts required by a fuel cell or battery-powered forklift model.

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. There are numerous working conditions however that make electrical models less practical. 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. Facilities require recharging stations to accommodate electric forklift trucks. If there are none currently installed, this will cost significantly more.
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 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.

All in all, electric forklifts have many advantages over internal combustion engine forklifts but still are not appropriate in many outdoor applications, mostly due to weather and weight restrictions.