

Electric Forklift

Used Electric Forklift Eugene - Electric forklift models do not rely on combustion engines but use an electric motor instead. Electricity comes from a fuel cell or internal industrial batteries. If internal batteries provide the electrical source, the batteries can be recharged by joining the battery to something 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 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 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 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 These types of forklifts operate in very narrow aisles, where space is limited. This allows for maximum use of storage space. Class 2 forklifts have a modified design to minimize the amount of space taken up by the forklift.
3. Class 3: Electric Motor Hand or Hand-Rider Trucks The Class 3 Electric Hand-Rider Trucks or Electric Motor Hand models are hand controlled. This means the operator uses a steering tiller and is positioned in front of the machine as opposed to riding on the forklift.
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. 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

The main type of rechargeable battery is lead-acid batteries. The lead-acid battery's ability to supply high surge currents means that it has a relatively large power-to-weight ratio. Electric forklift trucks rely on lead-acid batteries that are affordable and durable. Lead-acid batteries require maintenance and may freeze during colder temperatures. These factors can shorten their lifespan.

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 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. The Li-ion batteries can function with a broader temperature range compared to 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 forklift trucks operate better in cooler temperatures compared to li-ion battery models. The fuel cell models are preferred for colder applications such as warehouses that are refrigerated. Fuel cells are different from batteries in that they require a source of fuel to produce electrical current and so require 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

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. Some of the advantages of an electrically powered forklift over an internal combustion engine 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. Battery-powered electric forklift models and fuel cell electric forklifts generate no noise pollution or dangerous emissions. 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. Numerous circumstances however still prefer internal combustion forklifts. Certain electric forklift models disadvantages as compared to combustion models are listed 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. Facilities require recharging stations to accommodate electric forklift trucks. If there are none currently installed, this will cost significantly more.
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 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. 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.