

Electric Forklift

Used Electric Forklift Wisconsin - An electric forklift is a forklift truck that uses an electric motor to generate power as opposed to an internal combustion model. Electricity comes from 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. These rechargeable batteries are lead-acid or lithium-ion battery. 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. Internal combustion engine forklift models and electrical forklifts can complete the same types of jobs. 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 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 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. The types of forklift trucks that are usually electrically powered include: electric counterbalanced trucks, pallet jacks, scissor lifts, rider low lift trucks, order pickers, cushion tire forklifts, rider low stacker, reach truck, walkie low lift trucks, towing tractor trucks and walkie low stackers.

Sources of Electricity for Electric Forklifts

Electric forklift models are mainly used on even, flat surfaces indoors. 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

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. Electric forklift trucks rely on lead-acid batteries that are affordable and durable. 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

Fuel-cell powered forklifts have some of the benefits of both battery operated forklifts and internal combustion engine forklifts. Fuel cell-powered forklifts provide no emissions like battery-powered forklift trucks. Fuel cell power efficiency is only forty to fifty percent which is roughly half as much as 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. For this reason, fuel cell powered forklifts are often

preferred for use in colder temperatures, such as refrigerated warehouses. Fuel cells are different from batteries in that they require a source of fuel to produce electrical current and so require refueling. Fuel cells only require approximately 3 minutes to refuel instead of the much longer recharging time for rechargeable batteries. 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 forklift trucks can often be a better option than internal combustion engine forklifts where a lift capacity does not exceed 12,000 pounds. 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. Battery-powered electric forklift models have lower operating costs due to the increasing cost of fuel required constantly by internal combustion models.
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. 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. 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 fatigue and equipment wear and tear are reduced in electric forklift models with the automatic braking system.
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 a variety of reasons, electric forklifts have become more popular in recent years over internal combustion models. There are numerous working conditions however that make electrical models less practical. Some of the disadvantages the electrical forklift has when compared to internal combustion engine forklifts are set out below.

1. Electric forklifts feature a lifting capacity of around 12k lbs. or less, limiting them from heavier jobs. This translates to using an internal combustion forklift on jobs where there is limited heavy lifting required.
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 forklifts sometimes require machinery to lift or lower the heavy batteries when replacement of batteries is necessary.

Electric forklift trucks have a wide range of benefits. They may not be adequate in certain working environments due to their weather and weight restrictions so check your job list accordingly.