

Electric Forklift

Used Electric Forklift Illinois - 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 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. Internal combustion engine forklift models and electrical forklifts can complete the same types of jobs. 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. 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** 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** 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** This classification includes forklifts that allow for a broad application use. In the electric forklift version, they are usually used for indoor use or dry outdoor use. 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. 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 battery's ability to produce high surge currents ensures a large power-to-weight ratio. 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 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 initially cost more than lead-acid varieties, but they provide better efficiency and require no maintenance compared to lead-acid models. 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 of the fuel cell power disadvantages is that they are approximately half as efficient as li-ion batteries. Conversely, fuel cell power provides more energy density, translating to longer running time for electric forklift trucks. The fuel cell models perform better in colder environments compared to lithium-ion batteries. Refrigerated warehouses rely on fuel cell models due to their ability to function in cooler locations. Fuel

cells need a fuel source in order to create an electrical current and need refueling. 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. 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. Certain advantages of the different types of forklift models are discussed 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 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. Battery powered electric forklifts also allow for recharging at charging stations. This eliminates the necessity for fuel transportation and fuel storage, both at the worksite and onboard the forklift itself.
4. Battery-powered electric forklift models and fuel cell electric forklifts generate no noise pollution or dangerous emissions. 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. The automatic braking systems on electrical forklifts helps to reduce wear and operator fatigue.
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

Internal combustion forklifts have become less popular than electric forklifts over recent years. 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. 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 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. Certain older buildings may need to undergo electrical upgrades to accommodate increased voltage systems.
6. Battery powered forklifts sometimes require machinery to lift or lower the heavy batteries when replacement of batteries is necessary.

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.