

Electric Forklift

Used Electric Forklift Orange - 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 internal batteries provide the electrical source, the batteries can be recharged by joining the battery to something electrically compatible. These rechargeable batteries are lead-acid or lithium-ion battery. Electrical production with a fuel cell is close to a battery source but requires refueling to be recharged instead of connecting to an electrical source. 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 main difference between these different forklift models is their source of power. Typically, electric forklift models are used indoors in warehouses and similar facilities that cannot rely on internal combustion engines due to interior 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 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. 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 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. 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. 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

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

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. 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. Refrigerated warehouses rely on fuel cell models due to their ability to function in cooler locations. 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. 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

Electric forklifts are often a popular choice compared to internal combustion models if the lifting capacity doesn't 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. Some of the advantages of an electrically powered forklift over an internal combustion engine 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. Electricity costs are more predictable than fluctuating fuel costs. This makes electric forklifts a more reliable choice in terms of operating expenses and budgets.
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. Both internal combustion engine forklifts and electric models have a back-up alarm that is noisy but necessary.
5. The automatic braking systems on electrical forklifts help to reduce wear and operator fatigue.
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. 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 cost more than internal combustion engine units.
5. Certain older buildings may need to undergo electrical upgrades to accommodate increased voltage systems.
6. Battery-powered units may rely on machinery to lower and lift the heavy replacement batteries during replacement.

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.