

Electric Forklift

Used Electric Forklift Kentucky - By definition, an electric forklift is a forklift truck which derives its power from an electric motor rather than an internal combustion engine. The electricity is sourced from either internal industrial batteries or fuel cell. Internal batteries often provide the electrical source. They are capable of being recharged by connecting the battery to a source that is electrically compatible. Rechargeable battery options include lithium-ion or lead-acid. 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. Both models utilize two power horizontal forks to load, transport and unload items. 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 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. 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 Mostly, electric forklift models are used for interior applications on even, flat floors. Battery powered forklifts prevent the emission of harmful gases and are suggested for indoor facilities, such as healthcare and food-processing facilities. Refrigerated jobs prefer to use fuel cell forklifts. They make no emissions and are capable of working in colder locations without a power reduction, unlike battery-operated models.

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. These affordable models consistently make lead-acid models popular batteries for electrical forklifts. Lead-acid batteries require maintenance and may freeze during colder temperatures. These factors can shorten their lifespan.

Lithium-ion Battery Another type of rechargeable battery used in electric forklift trucks is lithium-ion or li-ion batteries. 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. 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 Forklifts with fuel-cell power showcase the benefits of both battery-operated forklift trucks and internal combustion models. Similar to battery-powered forklifts, there are no local emissions delivered from fuel cell models. 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. For this reason, fuel cell powered forklifts are often preferred for use in colder temperatures, such as refrigerated warehouses. Different from batteries, fuel cells rely on refueling with a fuel source to create an electrical current. 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

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. It is essential to discover the pros and cons of one forklift type to another prior to choosing a model. 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. 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. 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. Electrical forklifts, both battery and fuel cell powered, produce no emissions or noise pollution. Both internal combustion engine forklifts and electric models have a back-up alarm that is noisy but necessary.
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 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. Battery powered electrical forklifts must be recharged and therefore require sufficient recharging stations to be installed at facilities where none are already present. This could amount to a significantly increased initial expense to the buyer.
3. Battery life can be affected by improper charging. They need to be regularly monitored to ensure they are not being charged too frequently or infrequently.
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 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.