

Electric Forklift

Used Electric Forklift Tacoma - 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. 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. 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 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 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. 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. These affordable models consistently make lead-acid models popular batteries for electrical forklifts. 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

Another type of rechargeable battery used in electric forklift trucks is lithium-ion or li-ion batteries. Explosions or fires may result in these batteries if they are improperly charged or damaged due to the flammable electrolyte they contain. 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

Fuel-cell powered forklifts have some of the benefits of both battery operated forklifts and internal combustion engine forklifts. Like forklifts powered by battery, fuel cell power produces no local emissions. Fuel cell power efficiency is only forty to fifty percent which is roughly half as much as lithium-ion batteries. Fuel cell power offers better energy density and provides electric forklift trucks 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 need a fuel source in order to create an electrical current and need 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. Of course, there are many considerations to decide if the electric forklift model is the best choice for a particular application. 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. 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. 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. The automatic braking systems on electrical forklifts helps 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

Internal combustion forklifts have become less popular than electric forklifts over recent years. Numerous circumstances however still prefer internal combustion forklifts. Key disadvantages of the electric forklifts in comparison to internal combustion engine are discussed 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. 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. Internal combustion engine forklifts are also less expensive compared to electric forklift models.
5. Older facilities may require electrical upgrades for increased voltage systems to power battery 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.