Electric Forklift

Used Electric Forklift Chandler - 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 source is derived from either 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. The rechargeable batteries are lithium-ion or lead-acid batteries. 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 perform the same types of jobs 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 source of power is the main difference between an internal combustion engine and an electrical forklift model. 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 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 Another classification is the Class 3 Electric Motor Hand or Hand-Rider Trucks. These machines are hand-controlled. The operator is positioned in front of the machine and relies on a steering tiller instead of 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. A list of forklift trucks that are typically powered by electricity are: Sources of Electricity for Electric Forklifts Electric forklift models are mainly used on even, flat surfaces indoors. Battery-powered forklifts are better suited for interior jobs as they do not emit poisonous gases; making them ideal for food-processing and healthcare applications. 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 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. 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 A lithium-ion battery or li-ion battery is another type of rechargeable battery used in electric forklifts. Explosions or fires may result in these batteries if they are improperly charged or damaged due to the flammable electrolyte they contain. 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. 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 that rely on fuel-cell power feature some benefits of both internal combustion and battery-operated forklift trucks. 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. Fuels cell power offers better energy density and provides electric forklift trucks to run longer. 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. 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. 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. Some of the advantages of an electrically powered forklift over an internal combustion engine 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. 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. 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. 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 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. 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. 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 cost more than internal combustion engine units. 5. Certain older buildings may need to undergo electrical upgrades to accommodate increased voltage systems. 6. Electric forklift trucks may need to use machinery to lift and lower the batteries into the unit during replacement due to their heavy nature. 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.