Electric Forklift

Used Electric Forklift Michigan - By definition, an electric forklift is a forklift truck which derives its power from an electric motor rather than an internal combustion engine. Electricity comes from a fuel cell or internal industrial batteries. Internal batteries often provide the electrical source. They are capable of being recharged by connecting the battery to a source that is electrically compatible. The rechargeable batteries are lithium-ion or lead-acid batteries. Electrical production by means of a fuel cell is similar to a battery source but cannot be recharged by connecting to an electrical source, instead requiring refueling. Electrical forklifts perform the same types of jobs as internal combustion engine forklifts. That is, they usually use two power-operated horizontal forks to load, transport for short distances and unload materials. The source of power is the main difference between an internal combustion engine and an electrical forklift model. 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 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 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. 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 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. 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. 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 initially cost more than lead-acid varieties, but they provide better efficiency and require no maintenance compared to lead-acid models. 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. 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. 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 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 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. There are many factors to consider in each specific application in order to determine whether an electric forklift is the best option. 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. The price of electricity is usually more stable and predictable than combustible fuel. This makes electrical forklifts a benefit when considering budget needs for projected operating expenses. 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. Both fuel cell and battery-powered electric forklifts produce zero noise pollution or emissions. The back-up alarm is the main exception; however, this is a normal characteristic of internal combustion forklifts as well. 5. The automatic braking systems on electrical forklifts helps to reduce wear and operator fatigue. 6. Electric forklifts boast greater intervals between maintenance compared to internal combustion engine models. This is mainly because there are less moving parts required by a fuel cell or battery-powered forklift model. Disadvantages of Electric Forklifts For a variety of reasons, electric forklifts have become more popular in recent years over internal combustion models. However, there are still several applications that make electrical forklifts a less practical option. 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. 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. 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 are also initially more expensive than internal combustion engine forklifts. 5. In some older facilities, the electrical system may need to be upgraded to accommodate an increased voltage requirement of battery powered forklifts. 6. Battery powered forklifts sometimes require machinery to lift or lower the heavy batteries when replacement of batteries is necessary. 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.