

Electric Forklift

Used Electric Forklift Spokane - An electric forklift is a forklift truck that uses an electric motor to generate power as opposed to an internal combustion model. The electricity is sourced from either internal industrial batteries or fuel cell. 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. 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. Internal combustion engine forklift models and electrical forklifts can complete the same types of jobs. Both models utilize two power horizontal forks to load, transport and unload items. The only substantial difference between an electrical forklift and an internal combustion engine forklift is the source of power. Electrically powered forklifts are typically used in warehouses and other indoor facilities where an internal combustion engine would cause poor air quality for workers.

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** 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 forklifts are predominantly used indoors on flat, even surfaces. Battery operated forklifts stop the emission of dangerous gases and are preferred for interior locations including food-processing facilities and healthcare. 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. The battery's ability to produce high surge currents ensures a large power-to-weight ratio. 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 A Li-ion or lithium-ion battery is a different kind of rechargeable battery commonly used in electric forklift models. 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. Lithium-ion batteries are also able to operate over a greater temperature range with higher energy densities than 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. Fuel 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. For this reason, fuel cell powered forklifts are often preferred for use in colder temperatures, such as refrigerated warehouses. Fuel cells are different from batteries in that they require a source of fuel to produce electrical current and so require refueling. While

rechargeable batteries take a long time to recharge, fuel cells can be refilled in roughly three minutes. 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 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. It is necessary to discover the pros and cons of internal combustion engine forklift models versus electric forklift models prior to making a decision. 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 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. 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. Battery-powered electric forklift models and fuel cell electric forklifts generate no noise pollution or dangerous emissions. 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 typically have a limited lifting capacity of approximately 12,000 pounds or less which eliminates them as an option from larger jobs. Sometimes this means an internal combustion engine forklift is chosen even for jobsites where heavy jobs are few and far between but still a requirement.
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. 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. 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 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.