

Chapter 1 : Raymond Forklift Trucks | Fleet and Warehouse Solutions

Electric forklifts produce zero emissions, virtually eliminate the hazard of carbon monoxide poisoning, and run more quietly than internal combustion forklifts. However, electric forklifts present other serious hazards that must be addressed.

The forerunners of the modern forklift were manually powered hoists that were used to lift loads. This was in part due to the labor shortages caused by the war. In , Clark in the United States began developing and using powered tractor and powered lift tractors in their factories. The introduction of hydraulic power and the development of the first electric power forklifts, along with the use of standardized pallets in the late s, helped to increase the popularity of forklift trucks. Warehouses needed more maneuverable forklift trucks that could reach greater heights and new forklift models were made that filled this need. Safety features such as load backrests and operator cages, called overhead guards, began to be added to forklifts produced in this era. Forklifts are rated for loads at a specified maximum weight and a specified forward center of gravity. This information is located on a nameplate provided by the manufacturer, and loads must not exceed these specifications. In many jurisdictions, it is illegal to alter or remove the nameplate without the permission of the forklift manufacturer. An important aspect of forklift operation is that it must have rear-wheel steering. While steering, as there is no caster action, it is unnecessary to apply steering force to maintain a constant rate of turn. Another critical characteristic of the forklift is its instability. The forklift and load must be considered a unit with a continually varying center of gravity with every movement of the load. A forklift must never negotiate a turn at speed with a raised load, where centrifugal and gravitational forces may combine to cause a disastrous tip-over accident. The forklift is designed with a load limit for the forks which is decreased with fork elevation and undercutting of the load i. A loading plate for loading reference is usually located on the forklift. A forklift should not be used as a personnel lift without the fitting of specific safety equipment, such as a "cherry picker" or "cage". Forklifts are a critical element of warehouses and distribution centers. Often, forklift drivers are guided into the bay through guide rails on the floor and the pallet is placed on cantilevered arms or rails. These maneuvers require well-trained operators. Since every pallet requires the truck to enter the storage structure, damage is more common than with other types of storage. In designing a drive-in system, dimensions of the fork truck, including overall width and mast width, must be carefully considered. The latter allows forklift designers more freedom in ergonomic design. Forklift trucks are available in many variations and load capacities. In a typical warehouse setting most forklifts have load capacities between one and five tons. Larger machines, up to 50 tons lift capacity, are used for lifting heavier loads, including loaded shipping containers. Tilt also provides a limited ability to operate on non-level ground. Skilled forklift operators annually compete in obstacle and timed challenges at regional forklift rodeos. Design types[edit] A truck-mounted forklift. The following is a list, in no particular order, of the more common lift truck types: Walkie low lift truck [14] - powered pallet truck, usually electrically powered [15] Rider low lift truck [14] - usually electrically powered Towing tractor - may be internal combustion engine or electrically powered Walkie stacker [14] - usually electrically powered Rider stacker [14] - usually electrically powered Reach truck [14] - variant on a Rider Stacker forklift, designed for small aisles, usually Electrically Powered, named because the forks can extend to reach the load. There are two variants, moving carriage, which are common in North America, and moving mast which are common in the rest of the world, and generally regarded as safer[citation needed] Electric counterbalanced truck [14] - comes in Stand on End Control, Stand on Center Control, and Sit Down Center Control, which is the most numerous[citation needed] Electrical forklift Internal Combustion Engine Powered Counterbalanced Forklift [14] - comes in Stand on End Control, Stand on Center Control, and Sit Down Center Control, which is the most numerous. Engines may be diesel, kerosene, gasoline, natural gas, butane, or propane fueled, and may be either two-stroke spark ignition, four stroke spark ignition common , two-stroke compression ignition, and four-stroke compression ignition common. North American Engines come with advanced emission control systems. Forklifts built in countries such as Iran or Russia will typically have no emission control systems. Electric forklifts are primarily used

indoors on flat, even surfaces. Batteries prevent the emission of harmful fumes and are recommended for indoor facilities, such as food-processing and healthcare sectors. Fuel cell forklifts also produce no local emissions, can be refueled in 3 minutes, and are often used in refrigerated warehouses as their performance is not degraded by lower temperatures. It may be electrically powered, or have an internal combustion engine. Some sideloaders have hybrid drivetrains. Usually has an Internal Combustion Engine. Engines are almost always diesel, but sometimes operate on kerosene, and sometimes use propane injection as a power boost. Some old units are two-stroke compression ignition, most are four-stroke compression ignition common. Forklifts built in countries like Iran or Russia will typically have no emission control systems. Some Telescopic handlers have Hybrid drivetrains. A special toothed grab holds the pallet to the forks. The operator transfers the load onto the pallet one article at a time by hand. This is an efficient way of picking less-than-pallet-load shipments, and is popular for use in large distribution centers. A reach truck with a pantograph allowing the extension of the forks in tight aisles. Articulated very narrow aisle counterbalanced trucks - sometimes called "Flexi or Bendi Trucks" after two of the largest manufacturers. Comes in stand on center control, and sit down center control, which is the most numerous. May have an internal combustion engine or an electric motor. Electric motors are most common. Engines may be diesel, kerosene, gasoline, natural gas, butane, or propane fueled, and may be either two-stroke spark ignition, four-stroke spark ignition common, two-stroke compression ignition, and four-stroke compression ignition common. North American engines come with advanced emission control systems. Some units have hybrid drivetrains. Guided very narrow aisle truck - A counterbalance type Sit Down Rider Electric Forklift fitted with a specialized mast assembly. The mast is capable of rotating 90 degrees, and the forks can then advance like on a reach mechanism, to pick full pallets. Because the forklift does not have to turn, the aisles can be exceptionally narrow, and if wire guidance is fitted in the floor of the building the machine can almost work on its own. Masts on this type of machine tend to be very high. The higher the racking that can be installed, the higher the density the storage can reach. This sort of storage system is popular in cities where land prices are really high, as by building the racking up to three times higher than normal and using these machines, it is possible to stock an incredible amount of material in what appears to be a small space. The operator wears a restraint system to protect him against falls. Otherwise the description is the same as guided very narrow aisle truck. Usually has an internal combustion engine. Articulated counterbalance trucks These are, unlike most lift trucks, front-wheel steer and are a hybrid VNA very narrow aisle truck designed to be both able to offload trailers and place the load in narrow aisle racking. Increasingly these trucks are able to compete in terms of pallet storage density, lift heights and pallet throughput with guided very narrow aisle trucks, while also being capable of loading trucks, which VNA units are incapable of doing. Two forms are available: This type of truck, unlike articulated narrow aisle trucks, requires a high standard of floor flatness. An omnidirectional wheel system is able to rotate the truck degrees in its own footprint or strafe sideways without turning the truck cabin. One example is the Airtrax Sidewinder. UL safety rated trucks In North America, some internal combustion powered industrial vehicles carry Underwriters Laboratories ratings that are part of UL This is a voluntary standard, and there is no requirement in North America at least by any Government Agency for manufacturers to meet this standard. As with UL it is a two-stage standard. Military 10K-AT "Adverse Terrain" Automated forklift trucks[edit] In order to decrease work wages, reduce operational cost and improve productivity, automated forklifts have also been developed. Image of an electric forklift with component descriptions Truck frame - is the base of the machine to which the mast, axles, wheels, counterweight, overhead guard and power source are attached. The frame may have fuel and hydraulic fluid tanks constructed as part of the frame assembly. Counterweight - is a mass attached to the rear of the forklift truck frame. The purpose of the counterweight is to counterbalance the load being lifted. In an electric forklift the large battery may serve as part of the counterweight. Cab - is the area that contains a seat for the operator along with the control pedals, steering wheel, levers, switches and a dashboard containing operator readouts. The cab area may be open air or enclosed but it is covered by the cage-like overhead guard assembly. When enclosed, the cab may also be equipped with a cab heater for cold climate countries along with a fan or air conditioning for hot weather. On some forklifts, the overhead guard is an integrated part of the frame

assembly. Electric forklifts are powered by either a battery or fuel cells that provides power to the electric motors. For warehouses and other indoor applications, electric forklifts have the advantage of not producing carbon monoxide. The tilt cylinders pivot the mast backwards or forwards to assist in engaging a load. Mast - is the vertical assembly that does the work of raising and lowering the load. It is made up of interlocking rails that also provide lateral stability. The interlocking rails may either have rollers or bushings as guides. It may be mounted to the front axle or the frame of the forklift. This is useful when double-loading pallets into a container or under a mezzanine floor. It is mounted into and moves up and down the mast rails by means of chains or by being directly attached to the hydraulic cylinder. Like the mast, the carriage may have either rollers or bushings to guide it in the interlocking mast rails. A variety of material handling attachments are available. Some attachments include sidershifters, slipsheet attachments, carton clamps, multipurpose clamps, rotators, fork positioners, carpet poles, pole handlers, container handlers and roll clamps. Tires - either solid for indoor use, or pneumatic for outside use. The systems normally communicate the dimensions via NTEP certified dimensioning devices are available to support commercial activities that bill based on volume.

Chapter 2 : Products | Miami Industrial Trucks

These S-Series trucks can meet the demands of your biggest jobs. These trucks are available with either 48V 4kW DC or 72V kW DC motors as standard. 72V kW AC motor configuration also available. The Advanced EV Industrial Truck offer an oversized 9-ft bed and can carry a lb payload that's a "ton" of work.

Municipalities Pedicab Operators But no matter what you need it for, the most important reasons to choose a Truck Trike are those that set it apart from other delivery options like trucks, electric carts, and similar human powered vehicles. Check out all the reasons below. Electric Motors The Truck Trike features proven electric hub motors for the best in power and durability. Available with one or both rear wheels electrified, the hub motor design creates options including the capacity for all-wheel drive. This simplified drive system eliminates the need for a transmission, cross axle and differential – resulting in weight savings and increased cargo capacity. Front Wheel Drive Our front wheel drive pedal system features the patented StitesHub, which provides efficient power transfer with zero steering pull. This human powered system maintains high maneuverability, and enables each wheel to have its own power source. Separated Drivetrain Unlike other trikes, the human-powered component of the Truck Trike is completely separate from the electric power, meaning you can run only by pedal, on full electric, or any mix. This puts the driver in full control of the energy use, so if the battery is getting low, they can pedal more and still get to their destination. This feature also reduces weight and complexity, leading to high efficiency and low maintenance costs of the Truck Trike. Steel Frame Construction Truck Trikes are constructed with a hand-built tubular steel frame for the strength needed to move pounds of cargo for a long time. Low Cargo Bed The bed of the Truck Trike features a low floor height, improving stability and increasing payload capacity. It also comes standard with a coated floor, providing a flat, durable, easy-to-clean surface. Two-Piece Design The unique two-piece design, where the front and rear frames are separable, provides a modular vehicle whereby we offer various sized rear beds. This feature also greatly reduces shipping size and costs, as the trike can be partially disassembled and nested for a small crate size. Advertising and Promotion A Truck Trike outfitted for box delivery, point-of-sale or pedicab operations offers extra real estate to promote your business or to bring in added revenue as advertising space for other companies. Each Truck Trike is engineered and hand-built in our Portland facility. Not only does this enable us to oversee every detail and ensure the highest quality, but it also helps keep important manufacturing jobs here in our community. In fact, we are the only manufacturer in the US creating vehicles of this new weight class - lbs. Yes – fully sustainable, no fossil fuels, zero emissions, unmatched efficiency.

Chapter 3 : lbs. Industrial/Tow Truck Electric Winch with Automatic Load-Holding Brake

Industrial truck, carrier designed to transport materials within a factory area with maximum flexibility in making blog.quintoapp.com industrial trucks permit mechanized pickup and deposit of the loads, eliminating manual work in lifting as well as transporting.

Chapter 4 : The Advantages of Electric Forklifts | Miami Industrial Trucks

It is mounted on a carrier to the back of a truck/trailer and is used to unload heavy items from the truck/trailer at the job site. Note that not all truck/trailer mounted forklifts are rough terrain forklifts.

Chapter 5 : Browse subject: Industrial electric trucks | The Online Books Page

1 Scope. These requirements cover electric powered industrial trucks, such as tractors, platform-lift trucks, fork-lift trucks, and other vehicles designed for specific industrial uses, with respect to a risk of fire, electric shock, and explosion.

Chapter 6 : Industrial truck | blog.quintoapp.com

Our electric forklift employs CURTIS controller from the United State. The plate-type drive axle can rotate at the angle of 45°, making the maintenance of the motor and gearbox easier.

Chapter 7 : Industrial Trucks

Sample Daily Checklists for Powered Industrial Trucks Electric (battery) Powered The following checklist is intended to assist in compliance with OSHA's powered.

Chapter 8 : Material handling: industrial trucks - Statistics & Facts | Statista

Human + Electric Powered Industrial Trike The Truck Trike is the first true industrial trike, with unprecedented payload blog.quintoapp.com Truck Trike is intended for business, with a universal flatbed that can be customized for any use.

Chapter 9 : Forklift - Wikipedia

The Industrial Truck Association is one of the only organizations in the industry with detailed specifics to industry marketing data. One of the core benefits of ITA membership is gaining access to this market intelligence, which depicts trends and drives interest in the industrial truck marketplace by helping businesses recognize the changing needs of the industry –” and get the information.