

Electric Versus Internal Combustion Material Handling Solutions Guide

One of the most frequently asked material handling questions today is, “Should I use internal combustion (IC) or electric lift trucks”? Choosing the right lift truck can save your company money. Because individual applications may vary considerably, it is best to discuss any specific work conditions or plans with your local lift truck dealer before making your decision.

Applications

Electric Lift Trucks: Electric lift trucks are ideal for working indoors in many type of businesses. Electric lift trucks can be operated outdoors, typically only on dry, well paved surfaces.

Internal Combustion (IC) Lift Trucks: IC lift trucks are ideal for outdoor use, but if fueled by propane, they can be used indoors or outdoors.

	Advantages	Disadvantages
Electric	<ul style="list-style-type: none"> Produce zero emissions Reduced maintenance cost Longer economic life Lower noise levels Lower fueling cost Aisle width requirements are less than an IC lift truck 	<ul style="list-style-type: none"> Higher initial cost Typically not suited for outdoor use Less aggressive lift and ramp speeds Limited product availability over 15,000 lbs Downtime due to battery charging/charging Need for battery changing station Poor training or negligence can ruin the battery
IC	<ul style="list-style-type: none"> Lower initial cost Better for long runs, high speed and ramps Capacity capabilities of over 35,000 lbs Better suited for multi-shift operations Easy to refuel 	<ul style="list-style-type: none"> Indoor use requires good ventilation Higher maintenance than electric lift trucks Higher fueling cost than electric lift trucks



General Maintenance

Recharging. The biggest consideration of an electric lift truck is the recharging process. A typical battery takes 8 hours to recharge completely and then an additional 8 hours to cool down before it should be used. For example a single charge could last from 3 to 12 hours depending on the application and other factors. If your operation has multiple shifts you may need to purchase additional batteries or, in certain instances, a fast charge system can be used. The fast charge system will reduce the need for additional batteries and potentially eliminates the need for a charging station. A battery-handling station occupies approximately 200 sq. feet or more depending on the number of units in your fleet and number of shifts in your operation.

Refueling. The main benefit of an IC lift truck is the ability to refuel on the fly; simply load a new LP tank or refill gas or diesel at a refueling station and your lift truck is ready to continue working. The downside is that in some applications you may be required to refuel during a shift.

Quality

Reliability

Customer Service



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Electric And IC Lift Truck Comparison

Machine Equipment Cost. The total up front cost for an electric lift truck is greater due to the need to purchase a battery and charger. However, longer service life lowers the cost per year.

	Machine Equipped With	5,000 lb IC	5,000 lb Electric
	188 in. Triplex Mast, S/S, 42" Forks	\$22,180.00	\$21,675.00
	Battery	-	\$5,500.00
	Charger	-	\$2,285.00
	Normal Equipment Life	6 years	9 years
Purchase	Total Purchase Amount	\$22,180.00	\$29,460.00
	Purchase Cost Per Year Over Equipment Life	\$3,696.66	\$3,273.33
Lease	Monthly Lease Amount	\$333.03	\$476.78
	Lease Cost Per Year Over Lease Term	\$3,996.36	\$5,721.36

* Monthly lease amounts are based on a 60 month term, 2,000 hours/year and a 5.60% interest rate.

Fuel Cost Comparison. Sizable savings are possible with an electric lift truck, when compared with an IC lift truck. Several factors can impact the below numbers, such as local fuel cost and operating hours per year.

Cost Items	5,000 lb IC	5,000 lb Electric
Fuel Consumed per Shift	6.6 gallons	41 KWH
Fuel Cost	\$2.85 / gallon	\$0.10KWH
Cost per Shift	\$18.81	\$4.10
Operating Shifts per Year	250	250
Annual Fuel Cost	\$4,702.50	\$1,025.00

Maintenance Cost. As you can see from the chart below, maintenance cost can vary. Maintenance cost on an electric lift truck in terms of material and labor is often lower due to less moving parts, requiring less overall maintenance. IC lift trucks require regular engine maintenance. Electric trucks do not.

Cost Items	5,000 lb IC	5,000 lb Electric
Annual Labor Hours	44	33
Annual Parts Cost	\$1,667.00	\$833.00
Annual Labor Cost @ \$80 / hr	\$3,520.00	\$2,640.00
Total Annual Maintenance	\$5,187.00	\$3,473.00

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