



# Power Suite

Unlock the true power of your operation

The market offers more choices than ever to power lift trucks.

**But how can your operation choose the right one?**



## The Yale Power Suite

Yale offers its comprehensive range of lift trucks with a broad suite of power options. This enables customers the complete freedom to make a power decision solely based on their requirements, with access to leading edge technology.



### Hydrogen fuel cells

Refuel in as quick as 3 minutes and get consistent power delivery with zero harmful emissions and minimal space requirements



### Lithium-ion batteries

Take advantage of simple opportunity charging, zero battery maintenance and consistent performance in a wide range of temperatures



### Lead-acid batteries

Get up to speed with lower initial acquisition costs and multiple battery choices with the original electrification option



### Internal combustion engines

Experience consistent, high power suitable for even the toughest jobs, with fast refueling and exceptional reliability

**Yale provides the consultative expertise you need to make the right choice for your operation, backed by real-world experience with each power option.**

# Is it really just the cost of doing business?



## **Labor challenges**

Quality employees are more difficult to find and retain than ever, pressuring operations to maximize operator productivity. For a turnover-prone workforce, reduced power source involvement from operators means easier training.

Operations risk premature power source failure if maintenance, charging and refueling procedures are not followed – but requirements range from simple to complex. Simpler, low-maintenance power options are easier to train on and can boost productivity by allowing personnel to stay focused on the task at hand.



## **Limited space / expanding inventories**

Growing order volumes mean many facilities need to squeeze more capacity from existing square footage – even with narrow aisle storage reaching up to the ceiling.

Power sources all require refueling infrastructure or a charging and changing framework, but some require more space than others.



## **Health and safety regulations**

Whether due to government regulations, industry standards or corporate initiatives, many operations must keep an eye on airborne contaminants.

Lift truck power sources have different levels of emissions, as part of regular operation or as a result of off-gassing during the charging process.

**With the right power source, you can address operational challenges and unlock greater levels of operational efficiency.**



### **Electrical grid requirements**

Some geographic areas may be unable to handle the demands of charging lift truck fleets or accumulate excessive peak usage charges.

Operations have a variety of options to address these limitations, like staggering charging schedules to balance the load and control costs, financing utility projects or selecting a power source with minimal dependence on public utilities.



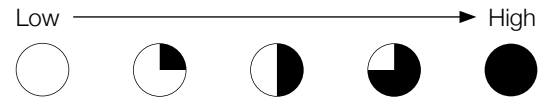
### **Excessive inventory of trucks, power sources**

























To mitigate the risk of not having enough trucks or batteries during peak times, operations are often forced to have additional equipment on hand, adding additional cost and space requirements.

An efficient fleet with a 1-to-1 lift truck to power source ratio happens by understanding how long and how often lift trucks must run, and the environment in which they operate. For example, a multishift operation that spans both ambient and refrigerated environments has different power requirements than an outdoor, single-shift operation.

**The Yale Power Suite approach starts with gauging your operation's challenges, collecting data and evaluating equipment, then a potential technology test drive. Ultimately, this produces a best-fit power solution.**

# Power source comparison



	Hydrogen fuel cells	Lithium-ion batteries	Lead-acid batteries	Internal combustion engines
Emissions	 No harmful emissions; only water vapor and heat	 No harmful emissions	 None while in operation, but does emit fumes that require ventilation during battery charging	 Emissions while in operation. Well-suited for outdoor or highly-ventilated environments
Space requirements	 Space-efficient infrastructure; storage can be located outside facility with dispensers located indoors or outdoors	 No specialized changing or maintenance rooms required	 Separate room, infrastructure often required for battery charging, changing and maintenance	 Primary fueling and storage infrastructure located outside facility
Maintenance	 Moderate maintenance requirements	 No maintenance or equalization requirements	 Higher maintenance requirements compared to other electric options	 Requires regular, but not daily, maintenance
Local utility requirements	 None, though refueling system may have requirements	 More intense electrical grid burden, depending on fleet size and charge intervals	 Moderate electrical requirements, depending on fleet size	 None
Required operator involvement	 Simple, fast refueling	 Designed for opportunity charging; faster recharge capability than lead acid	 Complex and time-consuming battery maintenance, charging or changing	 Simple, fast refueling with tank changes or pump
Sustained power delivery	 Consistent power delivery until full depletion	 Consistent power delivery until full depletion	 Diminishing power output as battery charge depletes	 Consistent power until full depletion

For more information, or to find your nearest Yale® dealer, go to [Yale.com](http://Yale.com).


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