



FREQUENTLY ASKED QUESTIONS: ELECTRIC CONTAINER HANDLERS

Moving product effectively is a mandatory for your business – but more and more, so is moving toward a more sustainable future. At Hyster, we’re drawing on our formidable expertise in electric forklift design to forge new motive power alternatives for high-capacity equipment that has traditionally relied on internal combustion engine (ICE) power.

These increasingly capable electric options are the result of a significant investment in engineering, testing and pilot programs, but we aren’t doing it alone. We closely collaborate with our customers to develop a range of advanced, energy-efficient electric container handlers, including ReachStackers and terminal tractors. Together, we’re creating solutions that deliver the performance that intense industries demand, and the brighter tomorrow that our communities deserve.

// EMISSIONS

1. Do electric container handlers produce carbon emissions?

No, both lithium-ion batteries and hydrogen fuel cells produce zero harmful emissions, and the latter emits only water vapor and heat as byproducts.

2. What are the emissions savings of an electric container handler?

The emissions savings will vary depending on the equipment being replaced, but as an example, the HFC top-pick container handler being piloted at the Port of Los Angeles is expected to provide emissions savings of 127 tons of carbon dioxide and almost half a ton of criteria pollution per year when used in regular container handling operations.

// THE STATE OF PORT ELECTRIFICATION

1. Why are container handling operations shifting to electric?

With a global focus on sustainability, decarbonizing is a growing priority for many businesses, particularly within their supply chain operations. Regulatory compliance, corporate initiatives, health and safety efforts, customer mandates for suppliers and consumer and investor favorability are some of the common drivers for adoption of electric container handling equipment.

2. Are there electric container handlers in use?

Throughout the market, product development is actively underway for many new and emerging zero-emission container handling solutions like electric laden or empty container handlers, ReachStackers and terminal tractors. Hyster is working on several clean power-focused port equipment projects around the world. Our active pilots include:

- An [HFC top-pick container handler](#) at the Port of Los Angeles in California
- An [HFC ReachStacker](#) at the Port of Valencia in Spain

We are also working on other projects, such as

- Supplying [battery-powered terminal tractors](#) to the Port of Mobile in Alabama
- Providing [an empty container handler and a terminal tractor](#), both powered by hydrogen fuel cells, to a port terminal in Hamburg, Germany
- Developing [electric and hydrogen-powered terminal tractors](#) with Capacity Trucks.

3. What power sources are used for electric container handling equipment?

Hyster electric container handling equipment can be powered by lithium-ion batteries or hydrogen fuel cells. While not an electric power source, hydrotreated vegetable oil (HVO) is an alternative, renewable fuel source that is also being used to reduce emissions in container handling operations..

// PRODUCTIVITY

1. Can a battery-electric or HFC-powered container handlers really deliver performance comparable to diesel?

Yes. Container handling applications, like those at port terminals, have long relied on the exceptional durability and consistent power delivery of ICE. But now, electrification solutions that use lithium-ion batteries or hydrogen fuel cells are capable of delivering the diesel-like performance terminal operations require.

2. How are electric power sources capable of providing heavy-duty performance?

Container handling equipment requires a high energy draw, something that electric power sources like lithium-ion or HFC technology can not only provide, but do so without overheating or dropping in efficiency. Compared to lead-acid batteries, lithium-ion offers far greater energy density, power transfer and service life.

3. Which power source should I choose? Is battery electric better than HFC?

Lithium-ion batteries and hydrogen fuel cells are both valid options for container handling equipment. Understanding the most appropriate choice for a particular application requires an evaluation of operational requirements and characteristics, including sustainability goals, runtimes, fleet size, the local utility grid or hydrogen access, and more.

// CHARGING AND FUELING

1. How often do I need to recharge or refuel electric container handling equipment?

Zero-emission options are being designed to provide enough capacity to keep operations moving and avoid the need to stop in the middle of a shift to recharge, or in the case of hydrogen fuel cells, refuel. But the required time and frequency of recharging or refueling are very important considerations. For large HFC-powered equipment, it takes about 15 minutes to fill an empty tank, enough for up to 8-10 hours of continuous runtime. A lithium-ion battery-powered top pick capable of opportunity charging, for instance, could have enough power onboard to complete a full eight-hour shift before needing to be charged.

2. Can the electric grid withstand the energy draw of charging electric container handlers?

The answer depends on the grid stability and capacity in your local area and the size of your fleet. Charging heavy-duty electric equipment like this does demand a significant energy draw, so it is important to work with a partner who can help you understand your power requirements, evaluate charging strategies such as staggered or overnight charging when there is a lower burden on the grid and speak with your local utility provider. It's also important to note that not all electric equipment is dependent on electricity from the grid. HFC-powered equipment can be a strong option where the local grid is not reliable.

3. What kind of infrastructure do I need?

Apart from the container handling equipment, you will need a charger for battery-electric equipment or hydrogen fueling stations and possibly storage, depending on your hydrogen sourcing strategy, for HFC-powered equipment.

// COSTS

1. How much does an electric container handler cost?

The price of solutions will vary based on the equipment type, power source, charging or refueling infrastructure and other factors. There is currently a significant cost differential between container handling equipment fueled with diesel and alternatives powered by electric, but as more electric equipment enters the market, economies of scale will help to drive parity. It's also important to remember that the initial acquisition price is only one piece of the total cost of ownership, and electric equipment can help to reduce certain operating and maintenance expenses. For example, electric drivetrains have fewer components and less complexity than ICE, which can help reduce the downtime and cost associated with maintenance.

2. Are rebates available for electric container handlers?

Various state and federal programs administer grants, rebates, tax incentives or carbon offset credits. [Speak with an electrification expert](#) to learn more about financial incentives in your area.

// OTHER QUESTIONS

1. Do electric container handlers require special technician training for maintenance?

Yes. Electric container handlers are categorized as high voltage equipment and there are important safety standards operations must understand and comply with to prevent electrical danger or injury.

2. How do hydrogen fuel cells work?

Watch the video below to see how the energy generation process works - the fuel cell, lithium-ion battery and high-voltage distribution module all play important roles. [Watch the video.](#)

Haven't found the answer you're looking for? Our team can answer it.
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