

Xos Trucks, Inc. (formerly Thor Trucks) ET-One

Peter Lobner, 2 April 2020

Thor Trucks, based in Los Angeles, CA, unveiled its aerodynamic, battery-electric powered Class 8 heavy-duty truck prototype in 2017. This Class 8 tractor is designed for regional-haul applications with daily ranges of 300 miles (483 km) or less.



Thor ET-One (before rebranding to Xos ET-One)

In order to get the ET-One demonstrator on the road quickly, it was built on a Freightliner (Navistar) Class 8 tractor chassis, with heavy-duty Dana axles and off-the-shelf permanent magnet electric motors from supplier TM4. With this prototype, Thor Trucks laid claim to being “the first electric truck company to show its prototype Class 8 truck, the ET-One, could successfully transport up to 80,000 pounds (36,287 kg) across 100 miles (161 km) on a single charge.”

On 24 April 2019, Thor Trucks announced that it had rebranded itself as Xos Trucks, Inc. (<https://xostrucks.com>) to resolve a trademark infringement lawsuit.



*Xos ET-One prototype.
Source: Brian Hadden / Trucks.com*



*Xos ET-One prototype.
Source: Bob Beresh Photography LLC / Transport Topics*



Xos ET-One prototype cockpit.

Source: Bob Beresh Photography LLC / Transport Topics

Xos is focusing on fleets that operate from depots and conduct regional freight operations. In this case, the truck usually will return to the depot at the end of the work cycle and can be recharged at the depot. The Xos ET-One semi-tractor prototype has the following characteristics:

- Battery-electric, zero emission powertrain
- Battery: 21700 lithium-ion batteries assembled into a custom 600 – 700 volt battery module rated at 30 kWh.
 - A Class 8 truck will have 10 – 12 battery modules operating in parallel, delivering 300 – 360 kWh.
- Powertrain: 350 kW (469 horsepower) on the prototype; 224 – 522 kW (300 – 700 hp) on the production model.
- Range: up to 300 miles (483 km), which can be tailored by scaling the number of battery modules.
- Regenerative braking
- Max. gross vehicle weight (GVW): 80,000 pounds (36,287 kg)

The production model Class 8 tractor will have a new chassis designed in-house. Xos has a partnership with Troy, Michigan-based AxleTech Inc. to create a specialized axle embedded with electric motors as the powertrain for its production tractors.



*Xos ET-One prototype with flatbed trailer.
Source: Magdalena Petrova / CNBC*

Xos Trucks also is targeting the smaller battery-electric Class 6 medium-duty delivery truck market. It currently is conducting demonstration Class 6 delivery truck programs in partnership with UPS, DHL and Loomis. These vehicles have a common, scaleable electric powertrain using the same battery module as in the ET-One (a minimum of four battery modules for the smaller trucks).



Xos Class 6 battery-electric truck. Source: Xos Trucks, Inc.

The goal is develop a range of higher-reliability, lower-maintenance, and lower cost to operate electric freight vehicles built on a scaleable electric powertrain platform.

See the following sources for more information on the Xos ET-One:

- Ryan ZumMallen, “Thor Trucks Storming Into Heavy-Duty EV Market,” Trucks.com, 13 December 2017:
<https://www.trucks.com/2017/12/13/startup-thor-trucks-electric-truck-market/>
- Roger Gilroy, “Thor Trucks to Launch New Entry in Battery-Electric Class 8 Market,” Transport Topics, 9 July 2018:
<https://www.ttnews.com/articles/thor-trucks-launch-new-entry-battery-electric-class-8-market>

Also see the following short videos:

- “XOS - An all-electric semi truck at the LA Auto Show 2019” (15:56 minutes):, jehugarcia, 19 November 2019:
<https://www.youtube.com/watch?v=nRBekhJgjSc>
- “An interview with XOS trucks co-founder and CEO, Dakota Semler” (4:25), ITP.net, 21 September 2019:
<https://www.youtube.com/watch?v=GvnwD5rhRYg>