



2024

Tesla Cybertruck Cyberbeast

Cost & Benchmarking Assessment



In partnership with:



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Cybertruck Overview

- “Tesla has never played by the rules and the Cybertruck is its most audacious attack on conventionality yet. A paradox like few vehicles in history, you might presume the driving experience is accordingly bizarre. To an extent, yes, but the Cyberbeast feels far more normal—and fun—than its looks suggest.”

Source: MotorTrend

- Consider that this tri-motor Beast model—or Cyberbeast, if you will—is a 6901-pound electric pickup truck that can tow 11,000 pounds and also hits 60 mph in 2.6 seconds, which matches the time we recorded with the Lamborghini Huracán STO. It has steer-by-wire and brake-by-wire, and its low-voltage architecture gets bumped up to 48 volts from the typical 12. The truck’s numerous sensors and controllers communicate over an internal “etherloop” network, which Tesla claims dramatically reduces the amount of wiring needed for communication among the various subsystems in the vehicle. The power tonneau cover for the bed is lockable and strong enough to stand on. And then there’s that dent-resistant stainless-steel skin, which is so robust that the doors have no internal side-impact beams because they don’t need them. The Cybertruck represents a thorough rethinking of how to build a car—much of it self-imposed, but progress can come in strange forms.

Source: Car & Driver

Cybertruck Description

The Tesla Cybertruck is available in several variants:

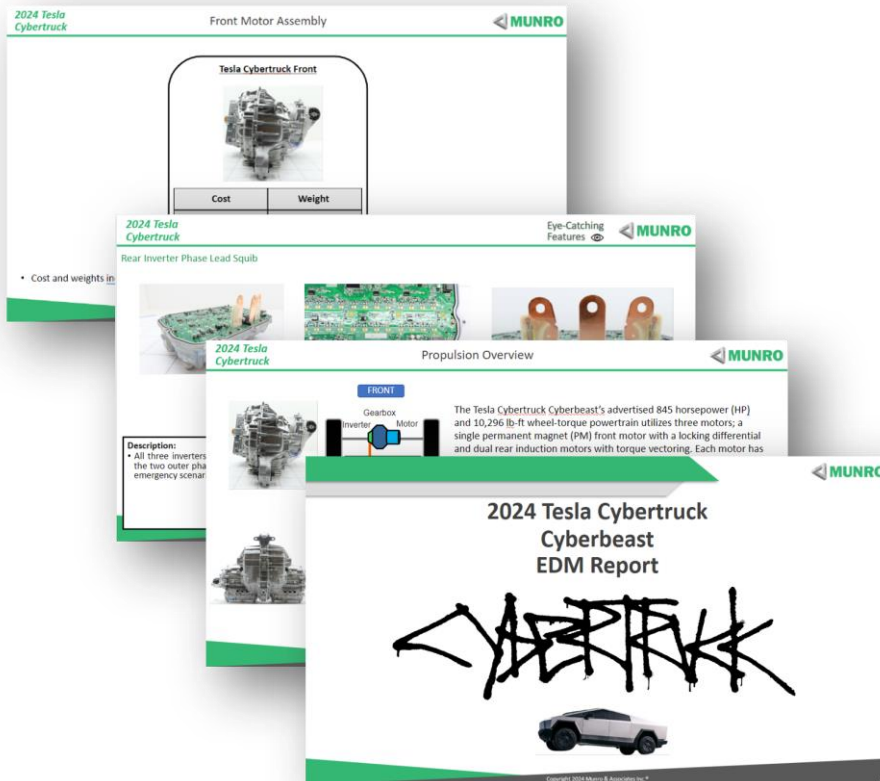
- Foundation Series Cyberbeast
- Dual Motor
- Tri Motor

General Specifications	2024 Cybertruck Cyberbeast
Seating Capacity	5
Driving Assistance (optional)	Full Self Driving
Height (Lowest/Highest)	68.5 inches / 76.6 inches
Length	223.7 inches
Wheelbase	143.1 inches
Width (w/o mirrors)	86.6 inches
Coefficient of Drag	0.21
Battery	123 kWh
Curb Weight	6,898 lbs
Driving Range	320 miles
<p>PRICE Base/As Tested: \$101,985/\$121,985 Options: Foundation Series (20-inch Cyber wheels with 35-inch tires, White décor, off-road light bar, premium accessories, Powershare home backup, Powershare mobile adapter, universal wall connector, Full Self-Driving capability, lifetime premium connectivity), \$20,000 Source: CarandDriver.com</p>	

Cybertruck Reports

The reports are a consolidation of Munro's technical findings related to cost, features, weight, material identification, architecture, and technology implementation, including Executive Summaries, and Eye-Catching Features.

Interesting observations, which are called "Eye-Catching Features." These observations represent advantages and/or disadvantages in cost, weight, feature content, or performance as related to design, material choices, assembly, or manufacturing process selection.



1. HV Battery Pack & Thermal System Report

Analysis Includes:

- Intra-battery pack components such as thermal management, pack architecture, battery cells and battery management system.
- High-level summaries covering battery characteristics, pack assembly, temperature control, electrical architecture, and supplementary pack details.
- Thermal management strategies associated with battery heating and cooling, cabin HVAC temperature control and electronics cooling loop. Specifics will be outlined in a separate section of this report.
- Battery cell details, which includes photographs of construction, dimensional analysis, electrical performance, chemical and SEM/EDX elemental composition analysis of the separator, anode, and cathode. The chemical analysis documents thickness and mass of cathode/anode/separator, plus details about the active materials used, conductive carbon, and any binder/additive materials used in the cathode and anode, as well as details of the base film and ceramic coating on the separator. The electrical performance analysis of the cells includes volumetric and gravimetric energy density (ED), capacity, Coulombic efficiency, voltage/current profile, and Hybrid Pulse Power Characterization (HPPC).
- Eye-Catching Features

2. EDM Report

Analysis Includes:

- Drive Motors, Inverters, Gear Boxes, Housings, and motor design technical details.
- High-level summaries related to motor, gearbox and inverter specifications, key dimensions, construction, and design related information
- Motor technical information relating to dimensions, design and construction strategies, magnet orientation, laminates, and mounting.
- Eye-Catching Features.

3. Steering, Suspension & Casting Report

Analysis Includes:

- Front & Rear Suspensions and Body Castings including Front & Rear EDM (Electric Motors and Gear Boxes), Knuckles, Control Arms, Cradles, Steering Rack and more.
- Steer-by-Wire architecture, operation, safety and performance features.
- Rear Wheel Steer components, operation, and enablers.
- Eye-Catching Features.

4. Electrical & Electronic (E/E) Report

The E/E report consists of the vehicle's entire electrical system including part names, materials, suppliers (as available), weights, photographs, and eye-catching features.

Report Includes:

- Communication: Networks (Ethernet, CAN, etc.) and Antennas
- ECU Summary: Autopilot + MCU/Gateway, Telematics, Body, Trailer and Door Controllers
- Key: Integrated Circuit Summary
- Systems & Relevant Components: Diagnostics, Powertrain, Autopilot/Driver Assistance, Infotainment, Lighting, Thermal Systems, Brakes & Suspension, Safety & Restraints, Access & Security

Report Delivery

Reports are in PDF format and will be made available through a secure File Transfer Protocol (FTP) site.

Frequently Asked Questions

Is Tesla involved in the study?

No. All data is developed through Munro's proven methodologies, analyzing a production version Cybertruck.

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