

Tesla Roadster *(2020)*

The **Tesla Roadster** is an all-electric battery-powered four-seater sports car made by Tesla, Inc.^[1] Tesla has said it will be capable of 0 to 60 mph (0 to 97 km/h) in 1.9 seconds,^{[2][3]} which is faster than any street legal production car to date at its announcement in November 2017.^[4] The Roadster is the successor to Tesla's

first production car, which was the 2008
Roadster.

Tesla Roadster



Overview

Manufacturer	<u>Tesla, Inc.</u>
<u>Model years</u>	2020–2022 (to be commenced)
<u>Designer</u>	<u>Franz von Holzhausen</u>

Body and chassis

<u>Class</u>	<u>Sports car</u> / <u>Grand Tourer</u> (S)
<u>Body style</u>	2-door <u>coupe</u>
<u>Layout</u>	Triple motor, <u>all-wheel drive</u>

Powertrain	
<u>Electric motor</u>	Three electric motors (one front, two rear)
<u>Battery.</u>	200 kWh (720 MJ)
<u>Electric range</u>	1,000 km (620 miles)
<u>Plug-in charging</u>	Offboard charger Supercharger V3 at >350 kW DC
Chronology	
Predecessor	<u>Tesla Roadster (2008).</u>

Tesla CEO Elon Musk has said that Roadster sales will begin after the release of the revised Model S, which Elon Musk has tweeted^[5] should enter production in

late 2020.^[6] Musk joked in a tweet that higher-performance trim levels will be available beyond the base specifications, including a SpaceX package which would "include ~10 small rocket thrusters arranged seamlessly around car" which would supposedly allow the car dramatic improvements in "acceleration, top speed, braking & cornering", and even the ability to fly.^[7]

Overview

History

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In 2011, at the end of the production run of the original Tesla Roadster, Elon Musk suggested that a new version of the Roadster, without the Lotus chassis, would return to production by 2014.^[8] The new Roadster was first teased in 2014.^[9] At the time, it was also referred to as the *Tesla Model R*.^[10]

In 2015, Elon Musk suggested a new Roadster, capable of faster acceleration.^{[11][12][13]} A tweet by Elon Musk in December 2016 reconfirmed a second Roadster was in the works, but still "some years away".^{[14][15]} The second

Roadster was designed by Franz von Holzhausen.^[16]

The 2020 version of the Roadster was shown in a surprise moment at the end of the Tesla Semi event on November 16, 2017—during which a Roadster was driven out of the back of one of the semi-truck trailers to the song "Sabotage".^[17] Musk explained the concept as: "The point of doing this is to give a hardcore smackdown to gasoline cars. Driving a gasoline sports car is going to feel like a steam engine with a side of quiche."^[18] The car will retail for upward of \$200,000;^[19] test rides were given at the

event for those who immediately paid the first \$5,000 of a \$50,000 deposit to pre-order the vehicle.^{[18][20][21][22]} Additional information followed after the teaser, such as the various world-record speeds Tesla said it will break.^{[23][24][25][26]}

In June 2018, Elon Musk revealed a potential feature called "SpaceX option package" for the Roadster.^[27] This would add around ten cold gas thrusters to the car to improve maneuverability; it would comprise an electric pump to recharge an air tank used to provide compressed air flowing through propelling nozzles to generate a cold jet thrust. The air tanks,

based on "composite overwrapped pressure vessel" (COPV) also used in the Falcon 9 and Falcon Heavy rockets, would replace the back seats. The thrusters would be used to improve cornering, acceleration, top speed, and braking.^{[28][29][30]} Working pressure would be 10,000 psi (700 bar).^[31]

During the 2020 second quarter financial results conference call, Elon Musk stated that Tesla plans to tentatively build the Roadster in California and production would be in the next 12 to 18 months. The start of production would be mid to late 2021.^[32]

Pre-order marketing

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Pre-orders of the Roadster began in 2017, with a US\$50,000 deposit required.^[18]

Tesla owners taking part in the referral promotion program began accumulating discounts toward the purchase of a Roadster based on the number of referrals. Those reaching 55 confirmed referrals obtained a 100% rebate toward a future Roadster purchase.^{[33][34]}

Price

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The base model was expected to sell for US \$200,000 but the first 1,000 to be

produced, known as the Founder's Series, will be priced at \$250,000.^[18] Full payment would be required to pre-order the latter vehicle.

Design



Second generation Tesla Roadster interior

The second-generation Tesla Roadster is a 2+2 coupé^[35] with a removable glass roof.

It was designed by Franz von Holzhausen,

who formerly worked at Mazda and Volkswagen. The Roadster has a 2+2 seating arrangements, with smaller rear seats for two passengers.^[18]

The Roadster has three electric motors, one in front and two at the rear,^[18] allowing for all-wheel drive, and torque vectoring during cornering. Tesla said that the vehicle had a 200 kWh (720 MJ) battery, twice the capacity of the largest battery in an existing Tesla car (in the Tesla Model S or Model X Performance or Long Range Plus). Tesla has said that the Roadster will have a 1,000 km (620 miles) range on a single charge at highway speeds. Tesla

stated that the torque at wheels was 10,000 N·m (7,400 lb·ft). The rear wheels are larger than the front wheels. ^[36]

Performance



Second generation Tesla Roadster (2019)

The following claims have been made by Musk for the prototype Roadster's acceleration:

- 0–100 km/h (0–62 mph) in 1.9 seconds (without specifying if this includes a 1-foot rollout or not, or whether thrusters are used or not)^[37]
- 0–100 km/h (0–62 mph) in 2.1 seconds for the base model before adding rocket thruster option (without specifying if this includes a 1-foot rollout or not)^[38]

Its claimed 0 to 400 m (0 to $\frac{1}{4}$ mile) time will be under 9 seconds, with a top speed above 400 km/h (250 mph).^{[39][40]} If the production Roadster achieves these performance numbers, it will outperform the supercars of 2019 and would set new production car records, none of which had

yet done better than 0–100 km/h (0–62 mph) in 2.0 seconds or 9.0 seconds in the 1/4 mile.^{[39][40]} Referring to the performance, Musk stated, "this is what we are achieving in the prototype", he also indicated the performance may improve in the production model and that the stated numbers refer to the anticipated "base model."^{[39][40]}

Analysis

Research completed by Bloomberg L.P. indicates that the estimate as to range per charge is optimistic, based on comments from Salim Morsy, electric vehicle analyst

at Bloomberg New Energy Finance. In an article titled *Tesla's Newest Promises Break the Laws of Batteries*, Morsy indicated that the claimed battery capacity would require batteries that would be too large for the Roadster's small frame. "I really don't think the car you saw last week had the full 200 kilowatt hours in it. I don't think it's physically possible to do that right now."^[41] Morsy's analysis directly contradicts Musk, who stated "this is what we are achieving in the prototype".^{[39][40]}

Venkat Viswanathan, a mechanical engineering professor at Carnegie Mellon University,^[42] told Jalopnik that the 1.9

second figure for 0–97 km/h (0–60 mph) seemed reasonable given the estimated battery weight of 833 kg (1,836 lb). He added that the feasibility of the acceleration claim assumed suitable tires would be available for the required traction.^[43]

Series 4, episode 12 of *Jay Leno's Garage* broadcast on August 23, 2018 featured Jay Leno inside the Tesla Roadster prototype along with its designer Franz von Holzhausen.^[44]

See also

- NIO EP9

- Rimac Concept One
- Rimac C Two (Concept Two)
- Mercedes-Benz EQ A
- Aspark Owl
- Pininfarina Battista
- Lotus Evija

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2. Acceleration times:

- *1.9s: standing start 0–62 miles per hour (0–100 km/h), without rollout allowance.*
- *1.9s: rolling start ~6–60 miles per hour (10–97 km/h), with 1-foot rollout allowance*

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