

Lexus LF-FC Concept



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TABLE OF CONTENTS

4
LEXUS LF-FC Concept

7
NEW EXTERIOR STYLING THEME

8
INTERIOR DESIGN WITH
TOUCHLESS TECHNOLOGY

9
HIGH-OUTPUT FUEL CELL POWERTRAIN

10
AUTOMATED DRIVING TECHNOLOGY

LF-FC Concept

LF-FC Concept HERALDS FUTURE LEXUS FUEL CELL FLAGSHIP SEDAN

- Lexus to introduce high-output fuel cell production vehicle around 2020
- All-wheel drive powertrain featuring two front in-wheel motors
- Advanced gesture control and automated driving technologies

'Lexus wants to surprise and evoke emotion with its distinctive design and forward-thinking technology. For us, it is more than just a car, and we should exceed conventional imagination. The LF-FC expresses our progressive luxury and high-tech vision of a not so distant future.'

Tokuo Fukuichi, President, Lexus International





The visionary Lexus LF-FC (Lexus Future-Flagship Car/Fuel Cell) Concept offers a glimpse of the design and technology under consideration for the company's future flagship sedan.

Powered by a high-output fuel cell and all-wheel drive incorporating both gesture control and automated driving technologies, the LF-FC Concept underlines Lexus's commitment to have a fuel cell car within its model range around 2020.

Lexus believes that the solutions to energy and emissions issues offered by the Fuel Cell Vehicle (FCV) make it the closest technology yet to the ultimate eco-car, with hydrogen as an ideal, ultra-clean energy source.

Generating zero CO₂, NO_x or PM and with water vapour the only emission, a fuel cell displays outstanding energy efficiency, which is about twice the efficiency possible with current generation petrol and diesel engines.

Not only does hydrogen fuel cell technology's extreme efficiency save energy and drive down costs, it also provides a long driving range and a refuelling process as quick as that of conventionally powered vehicles.

Moreover, a fuel cell powertrain delivers a uniquely quiet, smooth driving experience with the bare minimum of noise, vibration or harshness, making it ideally suited for adoption within the luxury automotive segment.

The company intends to thoughtfully build on this existing technology, further adapting it to ensure it offers the driving experience imagined of a Lexus luxury flagship sedan.

NEW EXTERIOR STYLING THEME

The LF-FC Concept features a fresh new styling theme, the dynamic and refined beauty of which embodies Lexus unique L-finesse design philosophy. From every angle, the sedan is aggressively elegant, exuding the spirit of a true Grand Tourer.

A further evolution of Lexus' distinctive grille dominates the front, and is flanked by slim, triple LED headlamp clusters and floating, arrowhead motif Daytime Running Lights (DRL). The rear is highlighted by a striking new lamp design which adopts the floating theme of the front DRLs.

In profile, the slim glasshouse and sweeping roofline identify the LF-FC as a 4-door coupe, with sporting, 21" aluminium alloy wheels with carbon fibre-reinforced plastic (CFRP) rims adding a further dose of dynamism and flair to the vehicle's elegant silhouette.



INTERIOR DESIGN WITH TOUCHLESS TECHNOLOGY

The interior embodies the next generation of Lexus luxury in an expansive space that wraps the passengers with both innovation and comfort whilst providing the driver with a highly functional cockpit.

Featuring 'floating' front seats and spacious, limousine-style rear accommodation with reclining seats, the cabin is trimmed in the high-quality aniline leather and genuine wood finishes appropriate to a Lexus luxury flagship model.

The car's innovative control system can be operated by hand gestures. This eliminates the need to actually press the touch panels. This next generation interface responds to people's natural movements, providing a more comfortable driving experience.

Images of navigation, air-conditioning, audio and other multimedia controls appear in the air above the console. Sensors detect driver movements and analyse the images, and the system then completes the determined control operation.



HIGH OUTPUT FUEL CELL POWERTRAIN

At the heart of the LF-FC is a high output hydrogen fuel cell power system. The system design is based on existing technologies, with various upgrades to improve vehicle performance, and driving performance (longer cruising distance through higher fuel efficiency) and mass production capabilities.

The system not only drives the rear wheels, but also sends power to two front, in-wheel motors, making the Concept all-wheel drive. This innovative drive system allows for precise torque distribution control between the front

and rear wheels, for superior high speed stability and exceptionally dynamic handling.

The strategic placement of the fuel cell stack at the rear of the vehicle, the power control unit at the front, and a T-shaped hydrogen tank running down the spine of the vehicle and across the front of the rear axle equips the LF-FC with ideal weight distribution for the perfectly balanced handling characteristics of a sporting sedan.



AUTOMATED DRIVING TECHNOLOGY

Contributing to the Lexus integrated safety management concept goal of zero casualties from traffic accidents, the LF-FC provides a safe and efficient driving experience for its occupants with automated technologies.

Adopting the Mobility Teammate Concept, which defines an overall approach to automated driving, it employs a similar system to the Highway

Teammate Vehicle, which uses a stereo camera, five millimetre-wave radar and six LIDARs to monitor the vehicle surroundings in a 360 degree arc.

Designed to ensure highway safety, reduce fatigue and lower traffic congestion, the system is designed to fully automate all operations necessary for highway driving including merging, lane keeping, speed adjustments, lane-changing and overtaking.

