



Hyundai ix35 Fuel Cell

- Up to 1.000 units of hydrogen-powered model to be produced by 2015
- Deliveries to municipal and private fleets underway
- Winner of prestigious FuturAuto 2013 award for technical innovation

Offenbach, 5 March 2013

Production of the Hyundai ix35 Fuel Cell began at the company's Ulsan manufacturing plant in Korea in January 2013, making Hyundai the first automaker to begin commercial production of a hydrogen-powered vehicle. The first complete car rolled off the assembly line on 26 February 2013.

Hyundai plans to manufacture 1.000 units of the hydrogen-powered ix35 Fuel Cell vehicles by 2015, targeted predominantly at public sector and private fleets, with limited mass production of 10.000 units beyond 2015.

Hyundai has already signed contracts to lease the ix35 Fuel Cell to municipal fleets in Copenhagen, Denmark and Skåne, Sweden. Additionally, since October 2011, the EU Fuel Cells and Hydrogen Joint Undertaking (FCH JU) in Brussels has been providing Hyundai ix35 Fuel Cell vehicles to EU policy makers and the public in order to demonstrate the market readiness of fuel cell technology.

Award-winning credentials

At the 2013 European Motor Show in Brussels, Belgium, the Hyundai ix35 Fuel Cell was awarded the prestigious FuturAuto accolade, selected as winner for becoming the first mass-produced, hydrogen-powered fuel cell vehicle to be commercially available.

The award, in its 12th year, celebrates technological innovation in the automotive industry

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and is judged by a respected panel of journalists from the Belgian Automotive Press Union (UJBA).

From a long list of 16 candidates, the judges selected a five-strong shortlist which included innovations from Hyundai, Bosch, Mazda, Mercedes Benz and Volvo.

Third-generation FCEV from Hyundai

The Hyundai ix35 Fuel Cell is the third-generation fuel cell-powered electric vehicle (FCEV) from Hyundai. Since Hyundai introduced the Santa Fe FCEV in 2000, the company has become a world leader in the development of hydrogen fuel cell technology, and operates the largest fuel-cell research centre in Korea.

In 2005, the second-generation Hyundai fuel cell electric vehicle - the Tucson FCEV - was introduced, powered by the company's first 80 kW (109 hp) fuel cell.

The third generation of Hyundai's FCEV family, the ix35 Fuel Cell represents a truly viable everyday vehicle, retaining the safety, equipment, convenience and performance of the conventionally powered ix35 and producing zero harmful tailpipe emissions.

The Hyundai ix35 Fuel Cell delivers large improvements over its predecessor, including a driving range that has been extended by more than 50% and fuel efficiency gains of more than 15%.

The ix35 Fuel Cell is equipped with a 100 kW (136 hp) electric motor, allowing it to reach a maximum speed of 160 km/h. Two hydrogen storage tanks, with a total capacity of 5,64 kg, enable the vehicle to travel a total of 594 km on a single charge, and it can reliably start in temperatures as low as minus 20 degrees Celsius. The energy is stored in a 24 kW lithium-ion polymer battery, jointly developed with LG Chemical.

Fuel cells operate by turning chemical energy from hydrogen into electromechanical energy. Internal to a fuel cell, an anode and cathode sandwich a polymer electrolyte membrane. The process of creating an electrical current occurs in three stages:

- Hydrogen gas flows over the anode, causing it to split into hydrogen ions (protons) and electrons.
- The polymer electrolyte membrane only allows the protons to pass through. The electrons travel to an external circuit which operate the motor.
- At the cathode, electrons and protons react with oxygen (from air) creating H₂O - water - which flows out of the cell as the only waste product.

Hyundai's ix35 Fuel Cell represents one of the most advanced vehicles of this type, and with continued development and improvements in production costs, it is expected that limited mass production will enable sales to much greater numbers of customers around the world to start beyond 2015.

Hyundai's hydrogen initiatives

Hyundai has been involved in a wide range of initiatives and partnerships to help promote hydrogen fuel cells as a future solution to Europe's transport requirements. With governments, non-profit organisations and private ventures all looking to the alternative modes of transport, Hyundai is supporting the momentum surrounding FCEVs across the region.

In May 2011, Hyundai signed a memorandum of understanding (MOU) with the City of Copenhagen, fuel cell producer H2 Logic and Hydrogen Link - the latter an association working to advance the use of electricity for transportation in Denmark based on hydrogen and fuel cells.

The aim of the agreement is to establish an infrastructure for the support of FCEVs in

Copenhagen, a city which aims to be carbon neutral by 2025. Under the MOU, Hyundai provided two ix35 Fuel Cell vehicles for a test drive attended by mayors of the capital cities of Denmark, Norway, Sweden and Iceland in 2011.

In October 2011, Hyundai invited Europe's top media to test its ix35 Fuel Cell in Copenhagen, and, in doing so, took another significant step towards its goal of bringing FCEVs to the mainstream car market by 2015.

The Copenhagen test drive followed the news that the ix35 Fuel Cell had been selected by the European Commission-backed 'Fuel Cells and Hydrogen Joint Undertaking' (FCH JU) to be used as a demonstration vehicle to test and promote hydrogen fuel cell technology in a real-world environment. As part of the initiative, the ix35 Fuel Cell was made available for Members of the European Parliament, Commissioners, EU officials and other policy makers to test drive. This gained great visibility for the ix35 Fuel Cell and hydrogen vehicle technology among policy makers.

In January 2012, Hyundai signed a memorandum of understanding along with twelve other industry participants to launch a scheme called UKH2Mobility. This draws on the experience of other hydrogen initiatives from across Europe to investigate the potential for hydrogen as a fuel for ultra-low carbon vehicles. Calling on £400 million (approximately €475 million) of funding from the UK government, the results of the scheme will lead to further steps to introduce hydrogen as a more mainstream fuel in the UK.

A February 2013 study published by UKH2Mobility forecast that, with suitable infrastructure investment, more than 1,5 million hydrogen-powered vehicles could be on the roads by 2030 in the UK alone.

The company's vision and strategy has earned it recognition as one of the 'Top Global Green Brands of 2012' in Interbrand's 50 Global Green Brands report. Placed 17th overall,

Hyundai was one of the highest-ranked automakers. Interbrand made particular mention of Hyundai's industry leadership in zero-emissions technology through advances in hydrogen fuel-cell development.

Through technological development, as well as the various schemes and initiatives that Hyundai is involved in, the company is demonstrating its commitment to hydrogen fuel cell vehicles as an environmentally friendly solution for fulfilling future mobility needs.

Technical specifications

Hyundai ix35 Fuel Cell

Powertrain and transmission

Front-mounted induction motor with two mid-mounted hydrogen fuel cell storage tanks.

Battery	24 kW lithium polymer
Fuel cell	100 kW fuel cell with two hydrogen storage tanks
Power / torque	100 kW (136 hp) / 300 Nm available from zero rpm
Transmission	Gear differential unit
Emissions	H ₂ O (water) only

Suspension and damping

Front	Fully independent - subframe-mounted MacPherson struts, with coil springs and gas-filled shock absorbers. Anti-roll stabiliser bar.
Rear	Fully independent - subframe-mounted multi-links, coil springs and gas-filled ASD shock absorbers.

Steering

Type	Electric power-assisted rack and pinion
Overall ratio	15,9:1
Gearing	2,96 turns lock-to-lock
Turning circle	10,58 metres

Brakes

Power	Servo-assisted, electronically-controlled
Front	Ventilated discs; 300 mm
Rear	Solid discs; 262 mm
Parking brake	Hand-operated lever
ABS	4-channel anti-lock system with EBD
BAS	Boosts braking power during emergency stops
DBC	Downhill Brake Control maintains 8 km/h speed during descents
100-to-0 km/h	41,7 metres

Wheels and tyres

Wheels	Alloy 16 in x 6,5
Tyres	215/70 R16
Spare	Tyre mobility kit

Dimensions (mm)

Exterior

Overall length	4410
Overall width	1820 (excluding door mirrors)
Overall height	1670
Wheelbase	2640
Front track	1585
Rear track	1586
Front overhang	880
Rear overhang	890
Ground clearance	170
Approach angle	24,2 degrees
Departure angle	26,9 degrees
Ramp over angle	17,0 degrees
Roll over angle	45,0 degrees
Max. climb angle	44,19 degrees

Interior

	Front	Rear
Headroom	1000	994
Legroom	1047	982
Shoulder room	1450	1400
Hip room	1410	1356

Weight (kg)

Kerb weight	1830
Gross weight	1980
Payload	375

Capacities

Hydrogen storage tank	5,64 kg / 700 bar (70 MPa)
Luggage	465 - 1436 litres

Performance*

Top speed (km/h)	160
0-to-100 km/h (sec)	12,5

Economy*

Driving range	594 km
kg / 100 km (hydrogen)	0,95

* Figures stated are manufacturer's estimates

-Ends-

About Hyundai Motor

Established in 1967, Hyundai Motor Co. has grown into the Hyundai Motor Group, with more than two dozen auto-related subsidiaries and affiliates. Hyundai Motor – which has seven manufacturing bases outside of South Korea including Brazil, China, the Czech Republic, India, Russia, Turkey and the U.S. – sold 4,4 million vehicles globally in 2012. Hyundai Motor, which employs over 80.000 worldwide, offers a full line-up of products including small to large passenger vehicles, SUVs and commercial vehicles.

Further information about Hyundai Motor and its products is available at www.hyundai.com.

About Hyundai Motor Europe

The company designs, engineers and manufactures cars in Europe, specifically for European consumers. In 2012, Hyundai achieved European sales of 444.000 units, taking a new-car market share of 3,5%. Almost 95% of the vehicles Hyundai sells in the region are designed, engineered and tested in Europe. And more than 70% are built at its two local factories (Czech Republic and Turkey), including New Generation i30, which is shortlisted for Europe's 2013 Car of the Year award. Hyundai sells cars in 28 European countries across 2.500 outlets.

Hyundai offers its unique, Europe-only, Five Year Triple Care warranty package with all new cars sold in the region, providing customers with a five-year warranty with no mileage limit, five years of roadside assistance and five years of vehicle health checks.

More information about Hyundai Motor Europe and its products is available at www.hyundai.com/eu.

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