Hyundai Motor Company
https://ecv.hyundai.com/global/en/products/xcient-fuel-cell-tractor-fcev
U.S.A. LHD 2404 ENG.

XCIENT Fuel Cell

ZERO EMISSIONS, ZERO COMPROMISES.

Hyundai has been developing hydrogen fuel cell vehicles for the past 25 years and selling them since 2013. XCIENT Fuel Cell is the world's first commercialized fuel cell heavy duty truck, proven in the high altitude of the Alps in Switzerland.

1998
Started FCEV development

2013
TUCSON FCEV
World's first mass-produced fuel cell electric vehicle

2018
NEXO
Dedicated fuel cell passenger vehicle

2019
ELEC CITY Fuel Cell
Hyundai's first fuel cell bus

2020
XCIENT Fuel Cell
World's first mass-produced hydrogen fuel cell heavy duty truck

2021
XCIENT Fuel Cell Facelift
Implemented minor upgrades including the new bold grille design

2023
XCIENT Fuel Cell Tractor
Developed for the American market

CHANGE YOUR POWER.
CHANGE THE FUTURE.

Powering the XCIENT Fuel Cell is a twin fuel cell stack that run on Hydrogen.
The fuel cell stacks generate electricity that powers the electric motors that deliver well over 350 kW,
upwards of 1,650 lbf·ft of torque, while emitting nothing but pure water.
It's the power that will change the future, available today.

HYDROGEN – PROVEN SINCE TIME BEGAN.

Hydrogen is the most abundant element in the universe.
It also has the highest energy per mass of any fuel,
with almost three times more than diesel or gasoline.
This is why Hydrogen is often referred to as the fuel of the future.

ZERO EMISSIONS

Fuel cell stack does not require combustion of hydrogen fuel. Electricity is generated through combining Hydrogen (H_2) with Oxygen (O_2), resulting in electricity and pure H_2O (water).

CONFIDENT RANGE

XCIENT Fuel Cell delivers more than 450 miles* per fill, and even more depending on loads and external weather conditions.

EFFICIENT CHARGING

Supports both 700 bar and 350 bar fills to deliver a versatile refueling. Spend less time at the pump and more time logging miles.

UNBURDENED PAYLOAD

The XCIENT Fuel Cell generates its own electricity through the fuel cell stack. This reduces the burden of heavy batteries, allowing more payload.

* Driving range and charging times can vary depending on external factors.

DON’T JUST CHANGE. IMPROVE.

Changes in the trucking industry are quickly approaching. You can lead or you can try to catch up. Hyundai XCIENT Fuel Cell puts you in the driver’s seat for state and federal mandates, zero emissions, massive tax credits, and a healthier business environment.

BE THE TALK OF THE HIGHWAY.

The XCIENT Fuel Cell's striking V-shaped mesh grille is a sure head turner.
Adding function to form, the mesh type grille maximizes airflow over the fuel cell stack for improved cooling performance.

LED HEADLAMPS
Durable LED headlamps offer the best possible illumination with less electricity consumption.

FIXED STEP BUMPER
Steps provide secure footholds for easy windshield access.

ROOF FAIRING / SPOILER
Curvy roof fairing reduces drag and improves mileage.

LED REAR COMBINATION TAIL LAMPS
The rear tail lamps also use LED lamps to improve both visibility and lifespan.

JUST AS YOU ARE USED TO. ONLY BETTER.

We believe technology should serve the user, not the other way around. That is why XCIENT Fuel Cell cabin is engineered around the driver. Offering great user experience, minus the distraction to keep your eyes on the road and hands on the wheel.

COMMAND CENTER

Everything you need to know without interrupting everything you need to see – the cluster delivers all the important information through sharp easy-to-read graphics.

INTUITIVE TOUCHSCREEN

8-inch touchscreen is perfectly positioned at an angle for ease of use, provides infotainment and seamlessly connects your mobile device.

TRUCK “ON” ALERT

The XCIENT Fuel Cell is so silent and vibration free, you could exit the cab leaving it running. That’s why the drivers are alerted should they begin to exit the quietly running cab.

REVERSE WITH CONFIDENCE

An extra-wide-angle lens paired with the 8-inch screen assures that drivers will be able to see and manage almost any obstacle behind the XCIENT Fuel Cell.

GOOD FOR THE PLANET, EVEN BETTER FOR YOU.

Silent. Comfortable. Not a whiff of diesel fumes.
As revolutionary as fuel cells are, the XCIENT Fuel Cell cabin is equally revolutionary for drivers.

PERFECT SEAT

XCIENT Fuel Cell driver seat offers wider angle and position customization for you to find the best posture to relieve the pressure on your back for those long drives. Additionally, the driver seat floats on a customizable air cushion that gently smoothes out bumps that could hurt your back.

MULTI-STAGE VENTILATED AND HEATED SEAT

The driver seat has heated coils to warm you up, or a cooling ventilation system to dry your sweat.

PUSH START BUTTON

If you have the key somewhere in your pocket, no need to look for it. XCIENT Fuel Cell starts at a push of a button.

WIRELESS CHARGING

Integrated wireless mobile phone charging eliminates your repeating chores of finding, pulling and plugging the cables into your smartphone. Just place it in the storage, where it will charge while you play your favorite tunes.

REST STOP COMFORT

Utility mode helps save energy when parked, shutting down power to the drivetrain and steering system, but retaining it for the HVAC, cabin lighting and multimedia systems.

AUXILIARY BRAKE AND MANUAL SHIFT

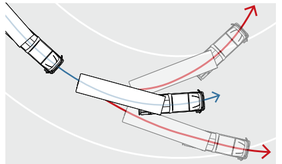
Control the braking with your fingertips by counter rotating the transmission fluid. Prevent wears to the footbrake and driver fatigue operating the pedals.

TESTED AND PROVEN.

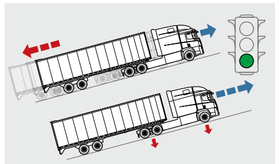
As the world's first commercialized fuel cell heavy duty truck, XCIENT Fuel Cell has been serving fleet customers on some of the most challenging terrain in the Swiss Alps, and has been through tens of thousands of miles of strenuous prototype testing in the U.S.A. as well.

THE TOUGHEST ROADS MAKE THE TOUGHEST TRUCKS.

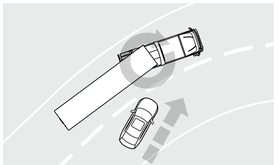
And the safest truck is the one most capable of avoiding accidents.
Proven in the winding roads of the high-altitude Alps, XCIENT Fuel Cell
proves its reliability with millions of clocked miles, supported by high tech safety technology.



VEHICLE DYNAMIC CONTROL (VDC)
In slippery conditions, VDC supports optimum vehicle stability by detecting traction issues and managing torque at each wheel to help maintain control.



EASY HILL START SYSTEM (EHS)
EHS prevents the vehicle from rolling back when starting again on steep slopes.



IMPROVED CRASH SAFETY
When there is a crash, the hydrogen tank shuts off to minimize the risk of electric shock and collateral accidents.

CAB FORWARD THINKING.

Operating a heavy duty truck requires precision.
Sitting high and forward, driver visibility increases significantly
and the cab-forward design gives you an edge when you need that extra inch.
Experience how the tight corners untighten.

IMPROVED VISIBILITY

The cab-over design delivers significant advantages for the driver, including superior visibility, minimized blind spots, and easier maneuvering in challenging environments.

AIR SUSPENSION

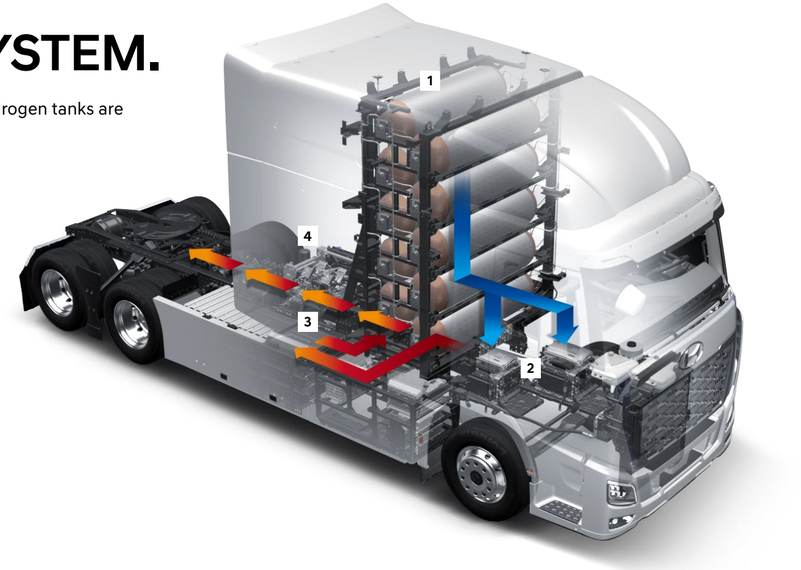
Front and rear air-cushioned suspension maintains vehicle stability for improved ride comfort and allows the cargo bed height to be adjusted for easier loading and unloading.

WEIGHT-DISTRIBUTION DISPLAY

This feature helps you keep an eye on the cargo weight distribution over your front and rear axles for safer and more stable hauling.

HIGH-TECH HYDROGEN SYSTEM.

Multiple layers of carbon fiber assure the hydrogen tanks are able to withstand catastrophic events.



HIGH-TECH HYDROGEN SYSTEM

HYDROGEN TANK 1

68.6 kg H_2 (700 bar)

STACK 2

180 kW (2 x 90 kW each)

BATTERY 3

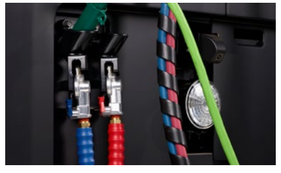
72 kWh (3 x 24 kWh each)

MOTOR 4

350 kW / 1,650 lbf·ft

WORK CONFIDENTLY.

The XCIENT Fuel Cell is engineered to deliver not just a better environment, but a better trucking experience. Not just when you drive, but even outside the cabin and around the truck.



TRAILER CONNECTOR

Placed at the rear for easy connection to the trailer. (North American SAE standard)

TRACTOR COUPLER

Applied North American HOLLAND Company Fifth Wheel. Easy sliding structure with air cylinder.

AEROKIT

Provides a small boost to fuel efficiency by reducing air resistance.

SIDE STEPS

The side steps located on the left behind the hydrogen tank increased convenience and maintenance related to lifting and lowering.

PARTNER IN EVERY WAY.

FUEL A BETTER FUTURE.

FEATURES

LED-type Clearance Lamps

Identification Lamps

Fixed Step Bumper

V-shaped Matte Chrome Garnish

LED-type Wide Headlamps

Fog Lamps and Daytime Running Lamps

Maintenance Panel on Spoiler

Easy Access Front Maintenance Panel

Body Colored Outside Mirrors

Electric Heated Outside Mirrors

Water-repellent Coated Pull-down Door Glasses

LED Welcome Lamp

Easy Access Door Steps

Door Courtesy Lamps

Front 315/70 R22.5 Tires

Rear 315/70 R22.5 Tires

FEATURES

Driver Side Roll-type Curtain

Door Pockets

Driver's Seat Back Side Console

Passenger's Seat Back Side Console

Full Auto Air-conditioner

Gear Change Knob + Mode Switch

Auxiliary Brake and Manual Shift

Trailer Hand Brake

12 V Dual Power Outlets

USB / iPod and AUX Ports

Tractor and Trailer Parking Brake

Passenger-side Foldable Table

Anti-slip Dashboard Upper Console

Overhead Console

Multiple Center Fascia Storage Spaces

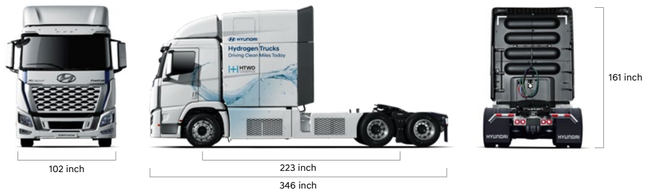
Passenger Seatback Table

SPECIFICATIONS

XCIENT Fuel Cell Tractor	
Cab Type	Day Cab
Configuration	6x4
Dimension	
Wheelbase	223 inch
Overall Length	346 inch
Overall Width	102 inch
Overall Height	161 inch
Weight	
Gross Combination Weight	82,000 lbs
Powertrain	
Fuel Cell Stack	180 kW (2 x 90 kW each)
Battery	72 kWh (3 x 24 kWh each)
Motor / Inverter	350 kW / 1,650 lbf·ft
Transmission	5-Speed Automatic Transmission
Hydrogen Tanks	
Filling Pressure *	700 bar
Capacity	68.6 kg
Performance	
All-Electric Range (AER)	450 miles with full load

* Capable of refuel from 350 bar pressure hydrogen stations.

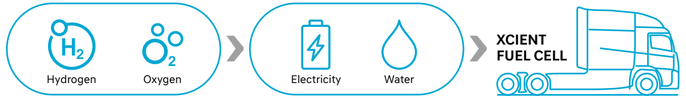
- The values above are based on internal testing results and are subject to change after final validation.
- Some of the equipment illustrated or described in this catalog may not be standard.
- Hyundai Motor Company reserves the right to change specifications and equipment without prior notice.
- The color may vary slightly from the actual colors due to differences in print quality.
- Please consult sales consultants for full and accurate information.



DELIVER SOLUTIONS, WITH YOUR EVOLUTION.

Let's turn the drivers who are turning the most miles into the drivers who are doing the most good.

THE ADVANTAGES OF HYDROGEN



MOVING POWER PLANT WITH ZERO EMISSION

The Hyundai XCIENT Fuel Cell generates power by combining H_2 and O_2, creating electricity, and emitting only water vapor, all while purifying the air that is used to create power.

EVEN BIG CHANGES START SMALL

A diesel-powered truck emits approximately 70 tons of CO_2 annually. In the U.S.A., there are approximately 70 million trucks on the road. That's nearly 5 billion tons of CO_2 emitted annually. One day, that could all be zero, but it has to start somewhere.

CLEANER AIR

FCEVs obtain their electricity through an electrochemical reaction of H_2 and O_2 drawn from ambient air. Because the purity of the air is critical to fuel cell efficiency, all of the impurities in the ambient air must be scrubbed away with the help of a high-performance air filter. As such, the XCIENT Fuel Cell, in turn, emits only pure water.

THE TRUTH ABOUT HYDROGEN

IS HYDROGEN SAFE?

Hydrogen is the lightest element, existing as a non-toxic gas at standard condition. Hence it is stored in high pressure tanks. So, in a rare case of damage or fire, the hydrogen fuel dissipates very quickly into the air, whilst the petrol tank sustaining the same damage will leak its liquid content, and burn for a much longer if ignited.

ARE FUEL CELL STACK SYSTEMS AND HYDROGEN TANKS SAFE?

Fuel cell stacks don't burn any fuel, but rather generates electricity from a chemical reaction. Hydrogen tanks are made from carbon fiber, to resist heavy pressure of hydrogen fuel. It has undergone comprehensive safety testing including ballistic penetration, exposure to open flame, repeated exposure to extreme temperatures and resistance to permeability.

ISN'T IT DIRTY / EXPENSIVE TO CREATE HYDROGEN?

Hydrogen fuel can be produced by many different methods. The environmental impact and production efficiency of it is dependent on how it is produced. Depending on the methods of producing it, hydrogen can be categorized as gray, blue or green with green being the produce from 100% carbon neutral manner. Several projects are underway to decrease costs and the negative impact to the environment associated with hydrogen production.

HYDROGEN FUEL COST

Compared to diesel, H_2 has an energy density (and thus efficiency), that is many times higher per pound. With regard to cost at fill-up, a joint approach of both government and private sectors are supporting this new industry, where hydrogen has the potential to become increasingly affordable in future.