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XCIENT Fuel Cell
Homepage

XCIENT Fuel Cell

Hydrogen Mobility.
Reliable and Evolving.

The XCIENT Fuel Cell, the world's first commercialized hydrogen-powered heavy-duty truck, has demonstrated reliable performance under demanding real-world conditions in the Swiss Alps. Hyundai is now expanding its global efforts to further develop hydrogen-powered mobility in close collaboration with industry partners worldwide.

* The images shown are for illustration purposes only and may not be an exact representation of the actual product.

Hydrogen –
For Transport Innovation.

The XCIENT Fuel Cell is powered by a twin fuel cell system that runs on hydrogen. When hydrogen passes through a fuel cell system, it reacts with oxygen to generate electricity, with water as the only byproduct during operation.

Hydrogen Fuel Cell Truck

Hydrogen (H_2) reacts with oxygen (O_2) to generate electricity, producing only producing only water (H_2O) as a byproduct during operation.

Confident Range

The XCIENT Fuel Cell provides a driving range of approximately 400 km per refueling, with the potential for even longer distances depending on the load and driving conditions.

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

Higher Efficiency

The XCIENT Fuel Cell makes daily operation easier with its high refueling efficiency. With fast hydrogen refueling and electricity generation during driving, daily operation becomes fast, convenient, and simple.

Field Proven Reliability

Nearly 200 XCIENT Fuel Cell trucks in Europe have accumulated over 15 million kilometers in real-world operations, delivering reliable customer service.

Designed for Safety.
Engineered for Intelligence.

The XCIENT Fuel Cell not only features an improved fuel cell system,
but also integrates multiple cutting-edge Advanced Driver Assistance System (ADAS) applications.
It is fully compliant with General Safety Regulation (GSR) II Step B, a comprehensive vehicle safety standard
established by the European Union, enhancing both driving safety and comfort.

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Don't Just Change.
Make it Better.

The XCIENT Fuel Cell's mesh-pattern grille and elongated bumper seamlessly integrate with the graphic elements and lighting module, creating a bold and modern aesthetic.

Stylish New Hyundai Logo

Experience innovation and style with Hyundai's new matte 2D logo — where modern design meets exceptional quality in every drive.

Wide LED Headlamps

The XCIENT Fuel Cell is bold and stylish with its wide LED headlamps and daytime running lamps.

Elongated Bumper

Rounded corners and an elongated bumper reduce air resistance, enhancing aerodynamic performance by 2.8% and fuel efficiency by 1.2%.

Side-Front Sensor and Side-Rear Sensor

Side-front and side-rear sensors enhance safety by detecting blind spots and preventing accidents during reversing and lane changes.

Forward-Thinking Design.

We believe technology should enhance the driving experience.
That's why the XCIENT Fuel Cell cabin is designed with the driver in mind—
offering an exceptional user experience while minimizing distractions,
so you can keep your eyes on the road and your hands on the wheel.

12,3-inch Digital Cluster

Providing all the essential information with minimal distraction, the 12,3-inch cluster features sharp, easy-to-read graphics.

Intuitive 12,3-inch Touchscreen

The 12,3-inch touchscreen features physical buttons below for improved operability, providing seamless infotainment and mobile connectivity.
Its built-in TomTom-based navigation system also provides safe, uninterrupted routes optimized for heavy-duty trucks.

Rear View Monitor

Equipped with an extra-wide-angle lens, the screen provides a real-time rear view video feed.

Motor Assist Hydraulic Steering (MAHS)

At a higher speed, MAHS provides a heavier steering feel for improved stability, while at a lower speed, the wheel feels lighter for easier turning and parking. (optional)

HVAC Controller

The Heating, Ventilation, and Air Conditioning functions are now easier to operate with the LCD.

Electronic Parking Brake (EPB)

The parking brake is easily activated with a simple pull of the lever, ensuring convenience and safety, with the added feature of Autohold.

Familiar but So Much Better.

With a refined layout and driver-focused controls,
the XCIENT Fuel Cell cabin enhances every journey with intuitive operation and seamless comfort,
building on Hyundai's extensive expertise in commercial vehicle design.

10-Way Air Suspension Seat

Increasing the range of seat adjustments to ten levels ensures the perfect seating position.
The seat floats on a cushion of air that gently smoothes out the bumps and imperfections of the roadway.
Multi-stage seat heating and cooling are also included. The 3-point belt features emergency locking retraction.

Smart Key

The new smart key includes remote start and
ECAS operation from outside the vehicle,
significantly enhancing operational convenience.

*Two keys standard, optional extras available

Switchable USB Port

Built for long hauls. Charge your phone, play media,
and access content—all through a C-Type USB port.

Clothes Hanger

The clothes hanger provides a convenient space for
hanging clothes, helping to keep the cabin tidy and
organized during long trips.

Wireless Charger

With 10W wireless charging, there is no need
for charging cables. Safety circuitry automatically
shuts off the charging current to prevent
your device from overheating.

Pop-Out Cup Holder

The pop-out cup holder under the crash pad ensures
easy access to drinks, helping you stay hydrated on
every journey.

Wider Bed with Larger Storage

The wider bed behind the driver's seat enhances rest
and comfort, creating a relaxed driving environment.
Additionally, it improves storage capacity beneath
the bed for efficiency during long trips or work.

Better Protection. In Every Direction.

Smart technology keeps evolving—it's practically a law of nature.
Hyundai's suite of Advanced Driver Assistance Systems (ADAS) is no exception, now more powerful than ever.
With newly integrated sensors and enhanced functionality, the XCIENT Fuel Cell is smarter and safer,
offering greater confidence on the road. With fewer distractions, every journey becomes more enjoyable.

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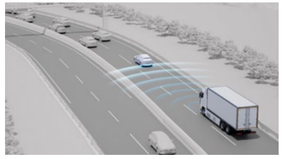
Smart Assistance for Safer, Smoother Driving.

The XCIENT Fuel Cell is equipped with an Advanced Driver Assistance System (ADAS) that enhances both safety and driving comfort.
Newly integrated features help reduce driver fatigue, ensuring a more relaxed and controlled driving experience.

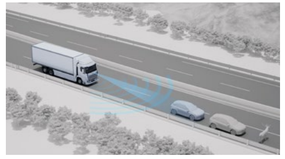
Alarm types

Audible alert | Visual alerts (Cluster) | Visual alerts (BCW indicator) | Haptic alert (Steering wheel) | Braking intervention | <Featured Videos>



Highway Driving Assist (HDA)

HDA is a driving convenience feature that helps maintain a set distance and speed from the vehicle ahead while driving on a highway/ motorway main section and helps center the vehicle in the lane, cooperating with features like Lane Following Assist (LFA), Smart Cruise Control (SCC), Hands Off Detection (HOD), and so forth for enhanced safety and comfort. (optional)



Forward Collision-Avoidance Assist (FCA)

FCA is a driving safety feature that helps prevent collisions with vehicles, pedestrians and cyclists ahead by warning the driver of sudden slowdowns or potential hazards through visual, audible, and steering wheel haptic alerts. If the risk increases, it automatically assists with braking.

Intelligent Speed Limit Assist (ISLA)

ISLA is a driving safety feature that helps prevent the vehicle from exceeding the road's speed limit. It uses the front camera to recognize speed limit signs and warns the driver of any violations or potentially hazardous conditions. When driving between 70–90 km/h with Smart Cruise Control activated, the system automatically adjusts the set speed by recognizing speed limit signs.

Forward Collision Warning-Near (FCW-Near)

FCW-Near is a low-speed driving safety feature that warns the driver to potential collisions with objects in close proximity to the front of the vehicle.

Advanced Driver Assistance Systems (ADAS)

What makes ADAS so exciting is its rapid evolution—
with improved sensors, innovative features—
all of which contribute to making driving safer and remarkably stress-free.

Blind-Spot Collision Warning-Near (BCW-Near)

BCW-Near is a driving safety feature that provides warnings when there is a risk of collision with cyclists or other objects approaching from the right-side blind spot.

Blind-Spot Collision Warning (BCW)

BCW is a driving safety feature that warns the driver of vehicles in the rear blind spot when changing lanes, helping to prevent collisions.

Driver Attention Warning (DAW)

DAW is a driving safety feature that continuously monitors the driver's attention level on a scale from 0 to 5. When attention drops, it reminds the driver to take a break and stay aware of their surroundings. The system also alerts the driver when the vehicle ahead begins to move, enhancing overall driving safety.

Driver State Warning (DSW)

DSW is a system that monitors the driver's condition using an in-cabin camera. When dangerous signs such as fatigue, drowsiness, or distraction are detected, the system alerts the driver through the cluster display and audible warnings. (optional)

Comprehensive Safety.
Intelligent Protection.

The XCIENT Fuel Cell is equipped with cutting-edge safety technologies that protect both the driver and the vehicle from potential hazards on the road. Integrated cybersecurity, driving assistance, and emergency response systems ensure a smarter, safer, and more reliable driving experience.

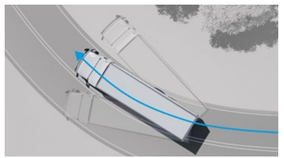
Smart Regenerative System

Smart Regenerative System, a driving convenience feature, optimizes regenerative braking from brake force level 0 to level 4. It analyzes downhill gradients and forward traffic conditions to ensure optimal braking force and maximize energy recuperation for enhanced efficiency and control.

* This feature does not bring the vehicle to a complete stop.

Easy Hill Start System (EHS)

EHS helps prevent the vehicle from rolling backward on slopes. When stopping and starting, EHS holds the main brake for about three seconds, and when rollback prevention conditions are satisfied, the EHS controller releases power to the wheels.

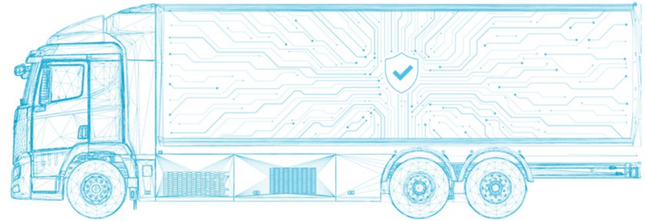


Vehicle Dynamic Control (VDC)

When wheel slippage is detected, VDC stabilizes the vehicle by automatically regulating the torque output and individually braking the wheels, thus helping the driver maintain directional control and reducing the risk of a rollover.

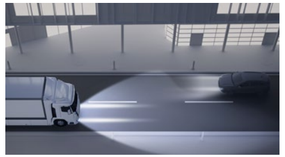
Electronic Brake Force Distribution (EBD)

Capable of detecting slippery road conditions and the loss of traction, EBD will vary the braking force applied to each individual wheel to help maintain directional stability.



Cybersecurity & OTA

Malicious actors are always at work, constantly probing systems for weaknesses. That's why the XCIENT Fuel Cell is equipped with robust cybersecurity software to keep intruders at bay. Vehicle owners can rest assured that the vehicle software for the XCIENT Fuel Cell is regularly updated, with Over-The-Air (OTA) updates ensuring that hackers are kept out and the system remains secure.



High Beam Assist (HBA)

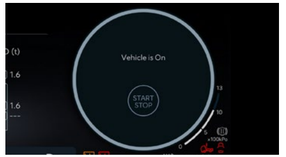
HBA automatically adjusts high beam settings by detecting ambient light, including headlights from oncoming and preceding vehicles, and not only turns the high beams on or off but also dims the brightness in the direction of other vehicles to ensure the safety of all drivers on the road.

Alcohol Interlock Interface

This system provides an interface for connecting an external alcohol detection module.
When a compatible module is installed, the system can measure the driver's alcohol level before engine start and prevent the vehicle from starting if alcohol is detected.

Tire-Pressure-Monitoring Sensor (TPMS)

TPMS enhances driver convenience and vehicle safety by continuously monitoring air pressure in each tire. It provides real-time data via the instrument cluster, allowing quick identification of abnormalities to prevent accidents, reduce tire wear, and optimize fuel efficiency.



Vehicle On Warning

The cluster will start showing a 'Vehicle On' warning as a safety precaution whenever the driver leaves the driver's seat when the vehicle remains on.

Innovation in Every Detail.

Innovation and power are reflected in every aspect of the design.
Subtle aerodynamic refinements minimize wind resistance, reducing noise and improving fuel efficiency.
Meanwhile, the reinforced bumper is meticulously engineered for enhanced maneuverability, requiring minimal clearance for tight turns.
In addition, customers can choose from a range of wheelbase options in the XCIENT Fuel Cell lineup.

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* DSM will be available soon.

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Haul More, Earn More.

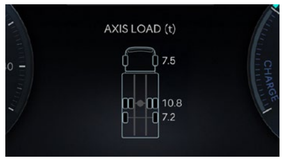
The versatile 4x2 XCIENT Fuel Cell is available in four wheelbase options, making it ideal for a variety of applications.
For maximum cargo-hauling capacity, the 6x2 model offers enhanced performance and flexibility, and is also available in four wheelbase options.
Featuring a rear tag axle, the 6x2 model increases operational capacity and maneuverability.
The reinforced ladder-frame chassis delivers greater strength and rigidity.

Front and Rear Air Suspension

The front and rear air suspension system absorbs road shocks and improves ride comfort, reducing driver fatigue and minimizing cargo damage.

Rear Axle Steering

Rear-axle steering is especially useful in tight spaces, reducing the turning radius and improving maneuverability. This feature is available on 6x2 models only.



Axle Weight Display

The Axle Weight Display system monitors axle load and alerts the driver to overloads or imbalances, enhancing stability and reducing vehicle damage and maintenance costs.

ECAS Switch

The ECAS switch allows the driver to easily control the Electronically Controlled Air Suspension (ECAS), providing convenient adjustments for the vehicle's ride height and comfort.

Digital Side Mirrors (DSM)

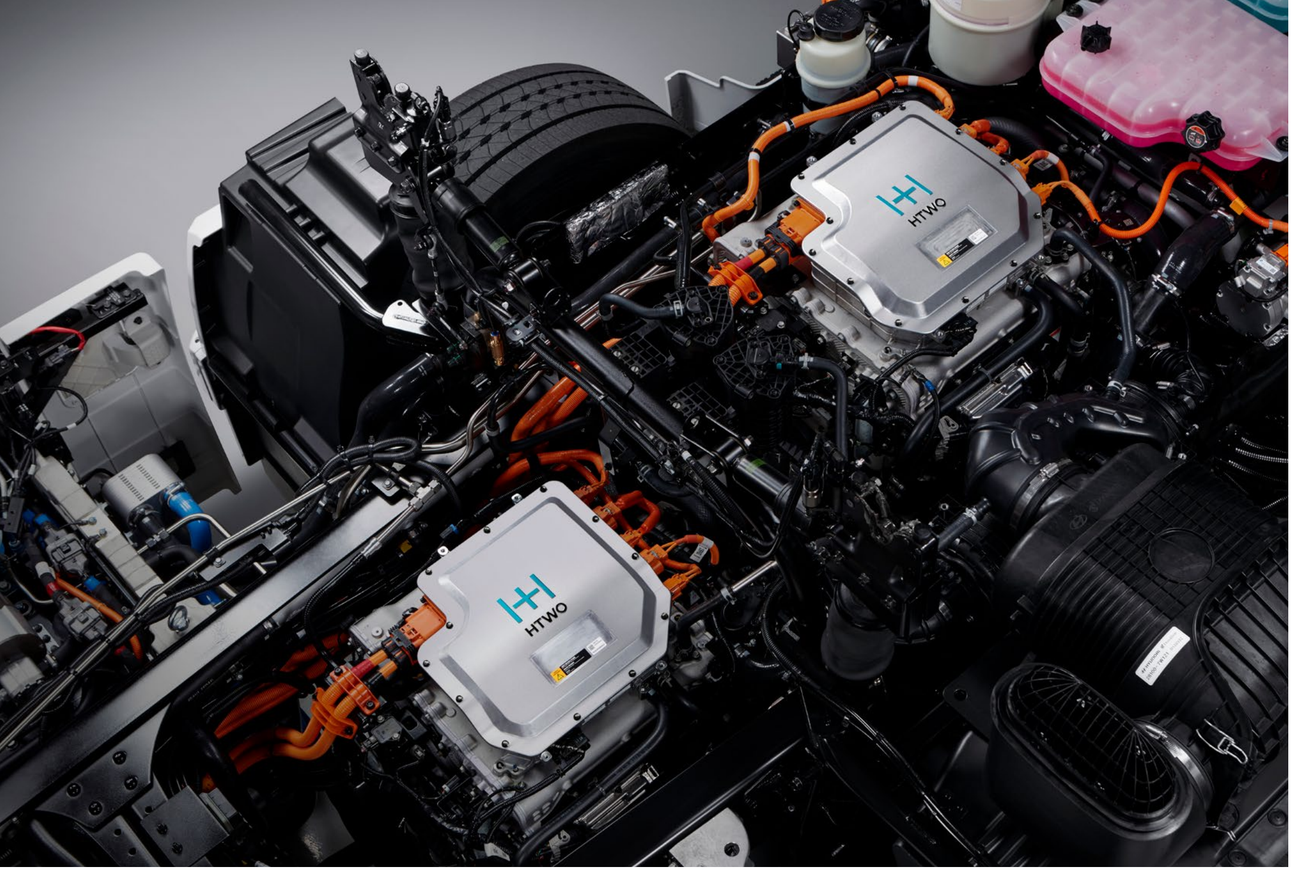
This system replaces physical side mirrors with a digital display screen to provide rear and side visibility. It enhances direct visibility and minimizes both weight and external protrusions, which helps improve fuel economy.
(optional)

*This feature will be available soon.

Choose Your Upfit

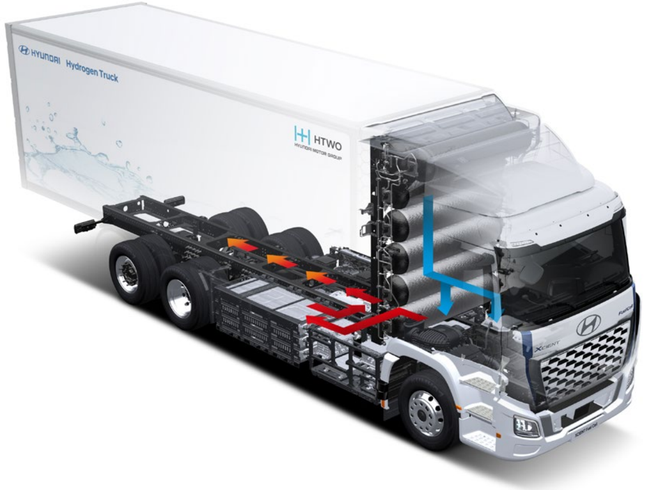
The XCIENT Fuel Cell supports ePTO* compatibility, enabling easy customization to suit a wide range of industry needs. This flexibility allows for tailored solutions that help customers optimize the vehicle for their specific applications.

* Electric Power Take-Off (ePTO) : Max. 100kW (optional)
This feature will be available soon.
The upfit example shown is for illustrative purposes only and is not currently compatible.



Advanced Hydrogen System.

The XCIENT Fuel Cell is equipped with an enhanced hydrogen system developed with Hyundai's advanced technology. Designed to improve energy and operational efficiency, it provides a reliable hydrogen-powered option for commercial transport.



31.08 kg H_2 (350 bar)

Hydrogen Storage Tank

The improved Type IV fuel tank, which includes a safety device for pressure relief in emergencies, provides a convenient filling environment.

220 kW* (2 x 110 kW each)

Fuel Cell System

The heart of the XCIENT Fuel Cell continues to evolve, offering improved system output and enhanced safety.

* Gross

72 kWh (3 x 24 kWh each)

Battery

The battery system features a reinforced mounting structure that enhances safety, prevents power loss, and helps reduce the risk of fire in the event of battery cell thermal runaway.

350 kW / 2,237 Nm

Motor

The drive motor, with a maximum output of 350 kW and 2,237 Nm of torque, ensures stable and responsive performance. The 5-speed automatic transmission optimally adjusts power delivery based on load and driving speed.

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Features


Roof Side End-Out Markers


Roof Spoilers

Fixed Step Bumper


Matte Chrome V-Shaped Grille


Wide LED Headlamps


Front Corner Radar Sensors
(Bumper Mounted)


Rear Corner Radar Sensors
(Driver's Side)


Rear Corner Radar Sensors
(Passenger's Side)


Heated Side Mirrors with LED Welcome Lamp


Water-Repellant Door Glass


Door Courtesy Lamps


Easy-Access Door Steps


Duomatic Trailer Connectors


Brake Hoses for Trailer


315 / 70 R22,5 Front Tyres


315 / 70 R22,5 Rear Tyres


Clothes Hanger and Removable Hooks


Web Storage


Under Bed Storage (Passenger Seat Side)


Under Bed Storage (Driver Seat Side)


Under Bed Storage (Center)


Passenger-Side Folding Table

Digital Tachograph


Rear View Camera

HVAC Controller


Driver Armrest Control Console


Auxiliary Brake and Manual Gear Shifter


Driver's Airbag

12 V / 24 V Power Outlets


USB / iPod and AUX Ports


Driver-Side Roll-Down Curtain


Overhead Storage Consoles

Lineup

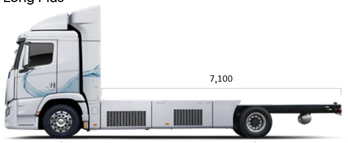
4x2

Short

Medium

Long

Long Plus



6x2

Short

Medium

Long

Extra Long

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Specifications

Type		4x2				6x2 (Steering Tag)			
Dimensions (mm)		Short	Medium	Long	Long Plus	Short	Medium	Long	Extra Long
Wheel Base		5,130	5,330	5,530	5,730	5,000+1,350	5,330+1,350	5,530+1,350	5,970+1,350
Overall (Chassis Cab)	Length	9,780				9,780	11,550	11,725	12,035
	Width	2,540 (With Side Protector, EU and CH)				2,540 (With Side Protector, EU and CH)			
	Height (Std. Spoiler / Add-On Spoiler)	3,730 / 3,900				3,730 / 3,900			
Wheel Tread	Front / Rear	2,050 / 1,845				2,050 / 1,845 / 2,050			
Overhang (Chassis Cab)	Front	1,575				1,575			
	Rear	3,075	2,875	2,675	2,475	1,855	3,295	3,270	3,140
C,A (Hydrogen Tank end to Rear Axle)		4,025	4,225	4,425	4,625	3,895	4,225	4,425	4,865
C,E (Hydrogen Tank end to End of Frame)		7,100				7,100	8,870	9,045	9,355
Min. Ground Clearance		230 (Rear Axle)							
Min. Turning Radius (m)		10,03	10,38	10,73	11,07	9,81	10,38	10,73	11,49
Weight (kg)									
Max. Gross Vehicle Weight (Front / Rear)*		19,500 (8,000 / 11,500)				27,000 (8,000 / 11,500 / 8,000)			
Technically Permissible Maximum Weight (Front / Rear)		8,000 / 12,500				8,000 / 12,500 / 8,000			
Max. Gross Combination Weight		38,000				42,000			

* Figures stated in relation to EU-Regulation 96/53/EC
** Allowed to exceed European overall length regulations (≤12m) according to elongated cab regulations

Calculated Performance		
Application Motor		LSM380C-HV-08
Max. Speed	km/h	85 (90 OPT)
Max. Gradeability	tanθ	4x2: 0.28 / 6x2: 0.23
Powertrain		
Fuel Cell System	Number of System	2 ea
	Gross System Power	220 kW (110 kWx 2 ea)
	Net System Power	188 kW (94 kW x 2 ea)
	Output Voltage	250 V~450 V
	Fuel Tank Capacity	1,351 L (31.08 kgH_2)
	Fuel Tank Material	Type IV (CFRP+ Plastic liner)
H/V Battery	Type	Lithium-ion
	Number of Battery	3 ea
	Energy Capacity	630 V / 72 kWh
Motor	Max. Power / Torque	350 kW / 2,237 Nm
Transmission		Allison ATM 4500 R
Type		Automatic transmission (5 forward gears and 1 reverse gear)
T.G.S.(Transmission Gear Shift)		Multi function switch RH lever shift
Electrical System	Battery	24 V-230 AH MF
Auxiliary Brake		
Retarder+Regenerative Braking		Retarder: oil operated Regenerative braking: electric operated
Suspension		
Type	Front / Rear	Air spring
Spring	Front / Rear/ Tag (6x2)	2-Air spring / 4-Air spring / 2-Air spring
Shock Absorber		Hydraulic double acting telescopic type on the front & rear axle

Exhaust System	
General	Exhaust hose + silencer + tail pipe
Tail Pipe	Droptail type, Blowing to chassis rearward,downward
Frame	
Type	“C” type frame with channel sectional side rail & cross members
Side Rail Dimension (mm)	(Depth x Flange x Thickness) 280 x 90 x 8
Rear Axle (kg)	
Type	Full floating type
Capacity	12,500
Final Reduction Gear Ratio	4.889
Front Axle (kg)	
Type	Reverse Elliot type “ I ” beam
Capacity	4x2: 8,000 / 6x2: 8,000
Tire & Wheel	
Type	4x2: single front, dual rear / 6x2: single front, dual rear, single tag
Tire (Front / Rear / Tag)	315 / 70 R22.5
Wheel (Front / Rear / Tag)	22.5 x 9.00
Service Brake (mm)	
Front / Rear / Tag	Disc : ø430 x 45
Adjuster	Auto adjuster
Cab	
Type	Electric driven hydraulic tilting
Mounting	Air full floating
Seats	Multifunction type

- 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.