Hyundai Inster

VERTEX ELECTRIC FWD AUTOMATIC

Sustainability Rating

2025 ★★★★★ 96%

Clean Air
9.7 /10

Energy Efficiency
9.5 /10

Greenhouse Gases
9.8 /10

Driving Experience

Consumption & Range
● GOOD

Cold Winter Performance
● POOR

Charging Capability
● ADEQUATE

Our verdict

The Inster is Hyundai's new fully electric supermini. It impresses with both its sustainability scores and good equipment. Additionally, Euro NCAP recently awarded it 4 stars for safety. In Green NCAP it excelled with 5 stars and an average score of 96%.

- The Inster has no tailpipe emissions and scores well on tyre and brake abrasion due to its low weight and strong energy recuperation. Production and energy supply emissions have minimal impact on the score.
- Energy use is low overall. Even the highest value (27.4 kWh/100 km in winter) is modest for EVs, while urban and real-world tests show excellent efficiency (12.6–14.1 kWh/100 km).
- The Inster's small size, low consumption, and small battery result in high environmental scores. Lifecycle emissions are 114.5 g CO_2-eq./km, with 63 from production in South Korea.

Disclaimer

Think before you print

Clean Air

9.7 /10

Comments

The electric Inster naturally doesn't have any tailpipe emissions. It collects most of the available points for tyre and brake abrasion supported by its low weight and high brake energy recuperation shares. Given the relatively small mass of both the car and its battery, as well the low consumption figures, the pollutant emissions of the vehicle production and energy supply have only a limited impact on the good performance in this part of the assessment.

Exhaust emissions

Exhaust pollutant emissions are produced from combustion engines. Although current emission legislation is very strict, this type of emission directly affects air quality, and not all vehicles perform equally well. Read more

GOOD ● **10.0** /10

In laboratory

Green NCAP performs a wide range of tests on cars in the laboratory. This is the best way to ensure controlled conditions and guarantee that all cars are tested in the same way, making their results comparable. Read more

GOOD ● **10.0** /10

	NMHC	NO_x	NH_3	CO	PN	PM	Score
Legal test (WLTP)	●	●	●	●	●	●	8.0/8
Warm weather	●	●	●	●	●	●	10.0/10
Highway	●	●	●	●	●	●	10.0/10
Winter cold start	●	●	●	●	●	●	10.0/10
Winter warm start	●	●	●	●	●	●	10.0/10

On road

An on-road driving test , using portable emissions measuring equipment complements Green NCAP's laboratory tests. Read more

GOOD ● **10.0** /10

	NMHC	NO_x	NH_3	CO	PN	PM	Score
Real-world mixed drive	●	●	●	●	●	●	10.0/10
Short city trip	●	●	●	●	●	●	10.0/10
Congestion	●	●	●	●	●	●	2.0/2

● good ● adequate ● marginal ● weak ● poor ● not applicable

Clean Air

9.7 /10

Non-exhaust emissions

Driving a vehicle also produces emissions different from those of the exhaust pipe. Green NCAP evaluates vehicle properties that contribute to tyre and brake abrasion.

GOOD 9.2/10

Tyre wear

Tyre abrasion releases small particles during driving, and some vehicle properties have major impact on it. Heavier vehicles, wheel alignment causing increased slip angle, and aggressive acceleration responses all increase tyre wear and particle emissions. Read more

GOOD 5.5/6

	Result	Score
Influence of mass		2.5/3
Wheel alignment		1.0/1
Accelerator response		2.0/2

Brake wear

Brake dust, produced by friction brakes, can be mitigated through filters, enclosed brake systems (like drums), or by reducing friction brake use with regenerative braking in electrified vehicles. Containment keeps dust inside the system, while recuperation lowers brake wear. However, heavier vehicles still generate more brake abrasion due to their greater stopping demands. Read more

GOOD 5.6/6

	Result	Score
Brake dust mitigation		0.0/4
Brake dust containment		0.0/6
Recuperative braking - warm test		5.6/6

good adequate marginal weak poor not applicable

Clean Air

9.7 /10

Additional Life Cycle Assessment information

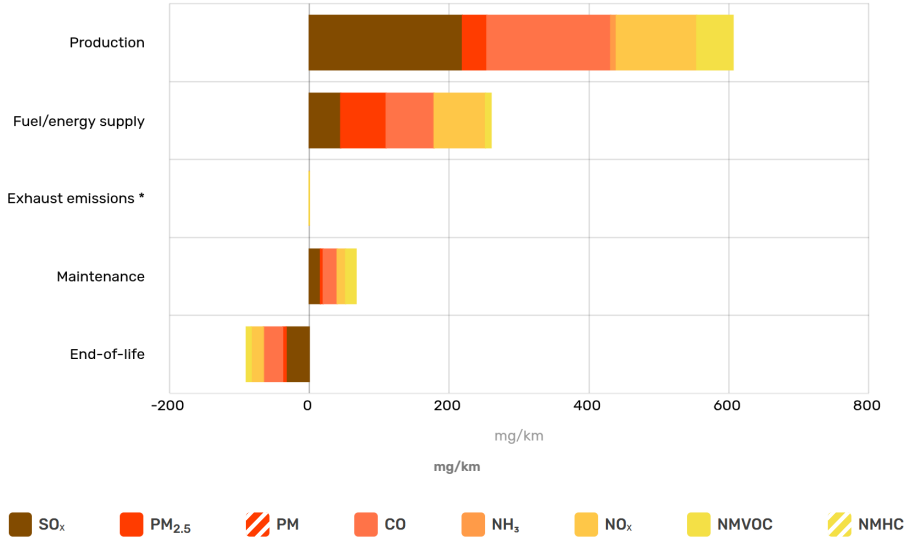
Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime, 'from cradle to grave'. In this section, pollutants are estimated in the various stages of a vehicle's life other than use. The chart also displays the measured emissions related to usage, which are taken as an average from the tests and are scored separately in the 'Exhaust emissions' part above. The end-of-life approach uses results in negative values because the benefit of materials recovery and recycling exceeds the effort of obtaining and processing virgin raw materials.

GOOD

9.4 /10

Pollutants

Most of the vehicle exhaust pollutant species are also emitted in others life cycle phases. These are health- and nature-damaging compounds, the amount of which should be reduced as well.



* Exhaust emissions are not contributing to the score in Additional Life Cycle Assessment information because they are scored in the Exhaust emissions section above

good adequate marginal weak poor not applicable

Energy Efficiency

9.5 /10

Comments

The consumption values are generally low and help the vehicle reach high scores in the Energy Efficiency Index. The highest consumption of 27.4 kWh/100 km is measured in the winter cold start test, but the value is still low, compared to other EVs. The real-world test and the short urban trip demonstrated surprised with excellent results – 14.1 and 12.6 kWh/100 km, respectively.

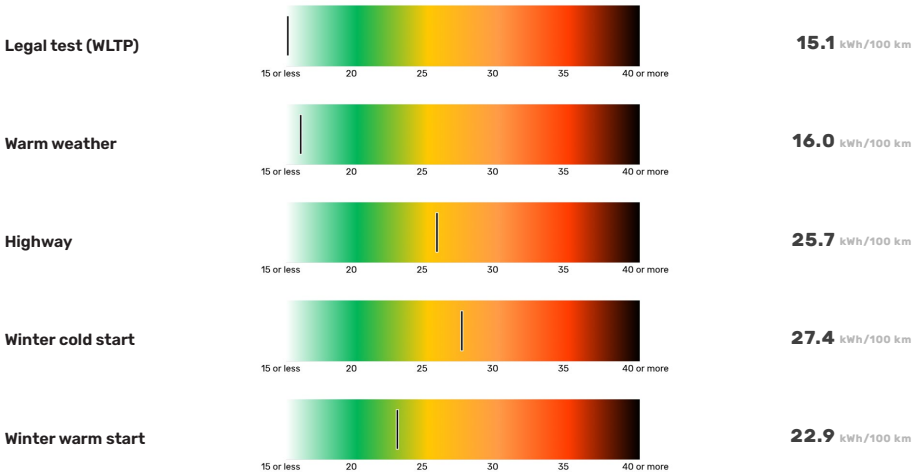
Energy demand

GOOD **9.5**/10

Propulsion energy consumption in laboratory

GOOD **9.7** /10

The vehicle's measured consumption figures are displayed in the bar chart. The colour scheme positions the values relative to low and high figures in a typical range. The ranges are different for combustion engine and pure electric vehicles.



good adequate marginal weak poor not applicable

Energy Efficiency

9.5 /10

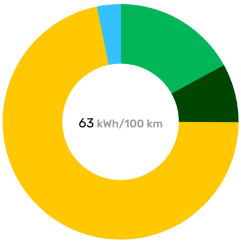
Additional Life Cycle Assessment information

GOOD

9.7/10

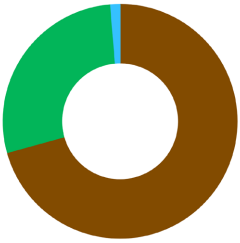
Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime 'from cradle to grave'. In this section, the total vehicle life cycle primary energy demand is displayed. The scoring does not consider the direct propulsion energy use, because it is scored separately in the 'Propulsion energy consumption in laboratory'.

Total LCA energy consumption



- Production & recycling 17.1%
- Battery production 8.1%
- Fuel/energy supply * 71.7%
- Maintenance 3.2%

Energy source share in total LCA consumption



- Fossil 70.7%
- Renewable 28.0%
- Other 1.3%

Direct propulsion energy share is not shown, it is included in 'Fuel/energy supply'.

Rolling resistance

Rated here is the vehicle's resistance to movement at low speeds. Different factors have an impact on it, but the most significant one is mass.

ADEQUATE

8.1/10

good adequate marginal weak poor not applicable

Greenhouse Gases

9.8 /10

Comments

The low consumption figures, the small size and weight, and the small battery help the Inster collect almost all points this index. The total life cycle greenhouse gas emissions are calculated to 114.5 g CO_2-eq./km, of which 63 are contributed by the vehicle production in South Korea.

Exhaust GHG emissions

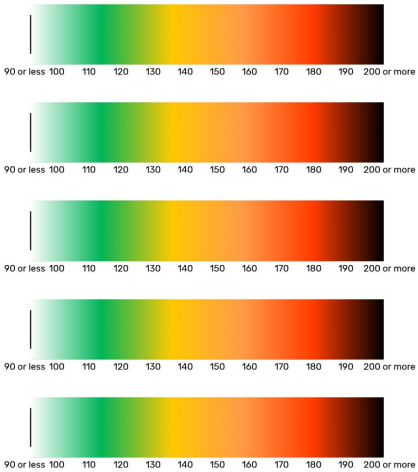
Combustion of conventional fuels releases greenhouse gases at the vehicle's tailpipe. The most significant of these gases are the emissions of CO_2. Green NCAP's assessment considers methane (CH_4) and laughing gas (N_2O) as well. Together, these are counted with their global warming potential to a sum known as CO_2 equivalent.

GOOD

10.0 /10

In laboratory

Green NCAP performs a wide range of tests on cars in the laboratory. This is the best way to ensure controlled conditions and guarantee that all cars are tested in the same way, making their results comparable. Read more



good adequate marginal weak poor not applicable

Greenhouse Gases

9.8 /10

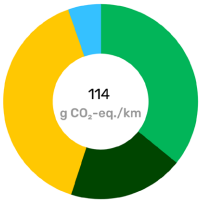
Additional Life Cycle Assessment information

Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime, 'from cradle to grave'. In this section, the total vehicle life cycle greenhouse gas emissions are displayed.

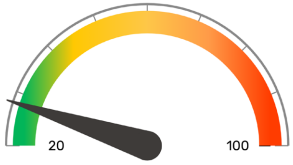
ADEQUATE

6.6 /10

Total LCA GHG emissions



- Production & recycling 35.9%
- Battery production 19.1%
- Tailpipe emissions * 0.0%
- Fuel/energy supply 39.7%
- Maintenance 5.3%



tonnes CO_2-equivalent/vehicle

Vehicle Life Cycle average emissions **28** (+/-)
(best **24** | worst **31**)

* The scoring does not consider the direct exhaust GHG emissions at the tailpipe, because they are scored separately in 'Exhaust GHG emissions' above.

good | adequate | marginal | weak | poor | not applicable

Driving Experience

Consumption & Range

GOOD

Cold Winter Performance

POOR

Charging Capability

ADEQUATE

Green NCAP Comment

- Most of the estimated warm weather real-world consumption values of the Inster are seen as 'good' , while the predicted cold weather figures are all in the 'adequate' range. Although the 49 kWh battery is relatively small, the achievable driving ranges in urban and rural scenarios are adequate for both warm and cold weather conditions. Highway range, however, drops to 'poor', making it clear that the motorway isn't Inster's preferred space. The consumption readings on the board computer display are accurate.
- Drivers are advised to preheat the vehicle before cold winter trips, if possible. By doing so, an increased driving range can be achieved. The possible values are not high for the Inster, but are still a valuable contribution to a longer driving range in cold conditions. The small Hyundai failed to impress with quick cabin heat-up in cold winter conditions. A fast temperature increase was measured only around the rear head area, while the other positions needed much longer. However, the Inster can be quite well equipped with additional heating functions, which may compensate for the slow cabin air warm-up and provide quick comfort to the driver and the front passengers. Green NCAP tested a high trim, which featured all the additional extras. The cabin thermal insulation is evaluated as 'poor'.
- The vehicle's home charging efficiency is standard with a grid-to-battery-output value of 88.5%. The fast DC charging is seen as adequate. In its higher trims, the car can be equipped with vehicle-to-load charging functionalities, which allows it to supply 230 V to external devices. The implementation of this function in a vehicle of this class is remarkable and deserves praise. Potential buyers are advised to study in detail the available equipment options, as they can vary between countries and additional adapters and sockets are not always included.

Consumption & Range

GOOD

Estimated actual consumption

GOOD

What consumption can be expected in real world conditions?

In-laboratory measured consumption values are only partially representative of real-world use. Green NCAP's estimates aim at providing more realistic figures, which are based on measured results, modified by correction factors.

Conditions	Urban	Rural	Highway	Mixed	
Warm weather	14.4	16.9	20.7	17.1	kWh/100 km
Cold Winter	25.5	21.8	27.7	25.1	kWh/100 km

Driving range

ADEQUATE

What driving range can be expected in real world conditions?

Of special importance to consumers is the real-world driving range of electric vehicles. Green NCAP estimates this based on measured data, modified by correction factors.

Conditions	Urban	Rural	Highway	Mixed	
Warm weather	382	326	267	322	km
Cold Winter	216	253	199	219	km

Accuracy of display

GOOD

Is the consumption figure on the display correct?

good adequate poor not applicable

Cold Winter Performance

POOR

Driving range benefit of pre-warming

ADEQUATE

How much further can you drive in winter, if the car is pre-warmed?

A cold vehicle has increased energy consumption at the start of its trip, mostly due to the cabin heating demand. Pre-warming the car while it is plugged, when possible, can significantly benefit its driving range in cold weather conditions. Green NCAP's winter tests are performed at -7°C.

Type	Driving Range Benefit	Result
Urban trip	+91 km	
Mixed trip	+40 km	

Cabin heating

POOR

Does the vehicle get warm quickly in winter?

This indicates the time needed to reach 16°C in seconds at different positions in the cabin after the cold vehicle has been started at -7°C ambient temperature.

	Front	Rear
Head area	741 s	217 s
Footwell	1,216 s	

The rear left footwell area reached the temperature in 1,186 seconds and in the right in 1,256 seconds.

good adequate poor not applicable

Cold Winter Performance

POOR

Additional heating functions

What functions can be used to improve heating comfort?

Unlike a combustion car, which usually uses the engine's waste heat to provide warmth to the cabin, in electric vehicles, the energy needed comes from the battery. Therefore, there is a trade-off between thermal comfort and energy consumption. Some additional heating functions can deliver good thermal comfort performance at lower energy use compared to heating up the entire cabin. If they can be scheduled or remotely activated before a trip, while the vehicle is still plugged, both comfort and driving range can be notably improved.

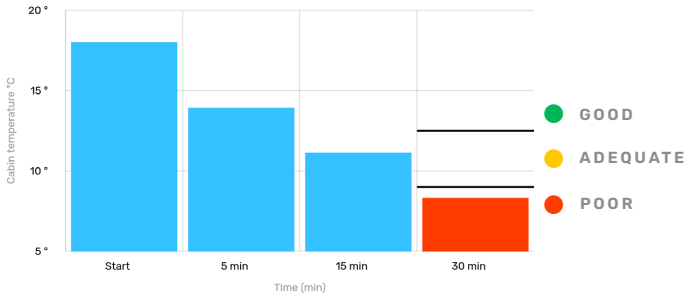
	Y/N	Fitment
Heat pump	✓	Standard for the tested version
Seating heating front	✓	Standard for the tested version
Seating heating rear	✗	
Steering wheel heating	✓	Standard for the tested version
Sheduled pre-heating of seats	✓	Standard for the tested version
Scheduled steering wheel pre-heating	✓	Standard for the tested version
Scheduled cabin air pre-heating	✓	Standard for the tested version
Smart cabin heating management	✓	Standard

Cabin thermal insulation

POOR

How well does the cabin maintain its temperature?

Assessed here is the average cabin temperature drop after 30 minutes, starting from 18°C when the outside temperature is -7°C and the vehicle is inactive.



good adequate poor not applicable

Charging Capabilities

ADEQUATE

Battery pre-conditioning

Does the vehicle have the ability to optimize the battery temperature for fast charging?

Fast charging is quicker when the battery temperature is in a certain range, and many vehicles possess the function to actively prepare for a coming fast charging event. Most use the charger destination in the navigational system to control the process, and some would offer a manual activation function.

	Manual	Automatic
Battery pre-conditioning	✗	✓

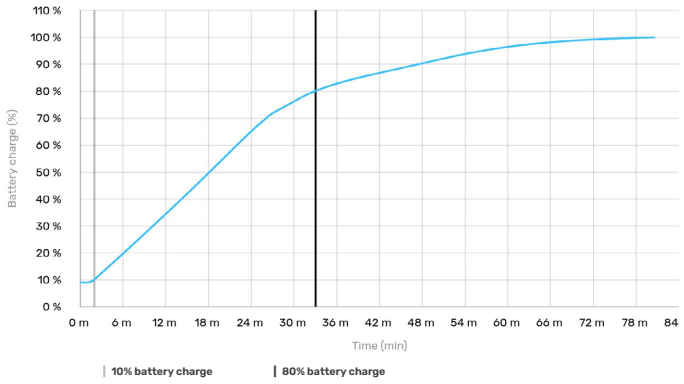
Fast charging

ADEQUATE

Green NCAP's fast charging test verifies the vehicle's ability to recharge fast, which is crucial at long trips or tight schedules. Although constantly improving, not all vehicles offer the same capabilities.

Charging time

How quickly can the battery charge?



good adequate poor not applicable

Charging Capabilities

ADEQUATE

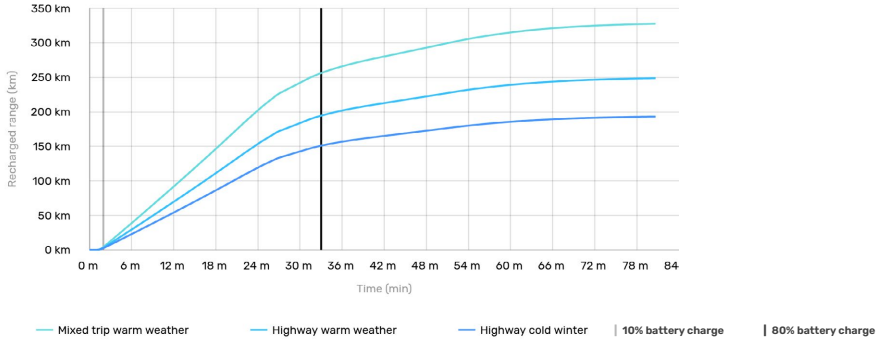
Fast charging

ADEQUATE

Green NCAP's fast charging test verifies the vehicle's ability to recharge fast, which is crucial at long trips or tight schedules. Although constantly improving, not all vehicles offer the same capabilities.

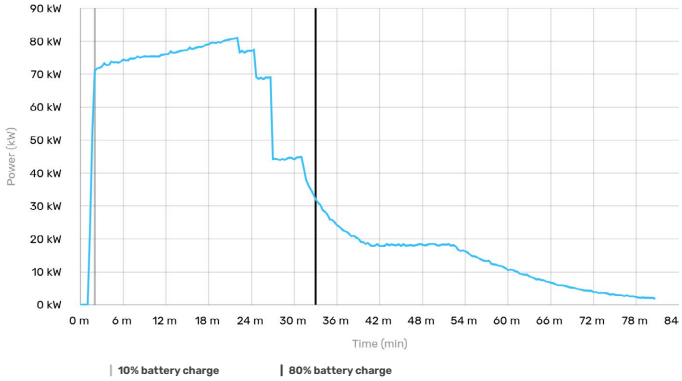
Recharged range gain per charging time

How long do you need to fast charge to drive a certain distance?



Charging power

How quickly does energy flow into the battery, depending on its charge level?



good adequate poor not applicable

Charging Capabilities

ADEQUATE

Home charging efficiency

ADEQUATE

Is charging at home efficiently utilizing the energy withdrawn from the grid?

The assessed efficiency value is the grid-to-battery-output efficiency, which describes what share of the energy taken from the electricity grid is available for the vehicle to use for propulsion and other auxiliary functions. The value encompasses not only the charger efficiency but considers several other losses as well.

Home charging efficiency	**89** %	
Maximum home charging power	**11.0** kW	Standard

Bidirectional charging

ADEQUATE

How capable is the vehicle of supplying energy from its battery to other devices or systems?

Bi-directional charging is available in some vehicles and is gaining increasing popularity. It comes with different power and functionality levels. However, battery usage for purposes additional to regular vehicle driving and charging might be disadvantageous for its durability and manufacturers might introduce limitations to protect it.

Power output

3.6 kW

Fitment: Standard for the tested version

Compatibility

✓ **Vehicle-to-Load (V2L)**
The inlet or the interior socket can provide AC power through an electrical domestic socket.

✗ **Vehicle-to-Household (V2H)**
The vehicle can provide power to a household through a charger.

✗ **Vehicle-to-Grid (V2G)**
The vehicle can return power to the grid.

Fitment: Standard for the tested version

Grid integration

✓ **Basic**
No integration (just a socket for a stand-alone load). No scheduling option. Very basic visualisation.

✗ **Limited**
Energy management system through the vehicle app (timers availability and power monitoring). Dedicated interface in the car, with mobile app monitoring.

✗ **Advanced**
Advanced settings available such as tariff and consumption control, linked to distributor energy prices. Advanced real time energy flow visualization. AI powered suggestions for optimal usage.

good adequate poor not applicable

Specifications

Vehicle class
City and Supermini

System power/torque
84.5 kW/147 Nm

Engine size
n.a.

Declared consumption
15.1 kWh/100 km

Declared driving range
Overall 360 km
City 493 km

Declared CO_2
n.a.

Declared battery capacity
Usable (net) 49.0 kWh
Installed (gross) 49.0 kWh

Mass
1,412 kg

Heating concept
Heat pump

Tyres
205/45 R17 88V

Emissions class
AX

Tested car
KMHB55119SW01xxxx

Publication date
11 2025

Also covered by this rating

Variants

Hyundai Inster
49 kWh Cross electric FWD automatic

Hyundai Inster
49 kWh Prime electric FWD automatic

Hyundai Inster
49 kWh Trend electric FWD automatic

Hyundai Inster
49 kWh Select electric FWD automatic