



***Irizar ietruck***

# New Irizar ie truck

Lighter, more versatile and more sustainable

## New Generation

The new generation has a design that is completely renewed, lightened and technically updated to comply with the latest legal requirements (ADAS and GSR2) and that is optimised to get the best performance in all kinds of uses in urban environments.

A lot of work has been done to reduce weight, which has a significant impact on lowering consumption and emissions, as well as a notable TCO improvement for the operator or end client.

Design, an incontrovertible icon of all Irizar brand products, is one of the main attributes of this truck, which is a vehicle with a ground-breaking, attractive and accessible look.

It incorporates the Group's electric traction, energy storage and control electronics technologies.

The result is a cleaner city and more sustainable environment for citizens.

## Sustainable Environment

It's an environmentally friendly vehicle that can provide access to low-emissions urban areas.

Due to its low noise level, it can operate early in the morning or at night.





## Accessibility, safety and optimal visibility

A single accessible stair leads to the cabin, ensuring safety for the driver and people accompanying them. Because the stair is only 370 mm high, it's **the vehicle with the lowest access height on the market.**

In addition, the cabin has collapsible seats for people accompanying the driver and a quick-opening door to the interior, which provides easy access without obstacles.

As with the entire Irizar range, safety is essential to the design of the cockpit, where ergonomics and driving visibility come first, in compliance with ISO 16121 and VDV 234.

In that way, we can guarantee an optimum field of vision around the driver with a panoramic view of the perimeter and ergonomic access to the controls, switches and dashboard panel.

In the Irizar ie truck, the low seat position and large front and side windscreens and door windows create unprecedented direct visibility conditions.

In addition to the design of the cabin, a number of technological elements improve the active safety.

- Individual braking for the wheel in risk situations.
- Lane Departure Warning System (LDWS) .
- Autonomous Emergency Braking System (AEBS).

# For unlimited applications

## Waste collection

The Irizar Group is currently able to offer vehicles for all types of truck bodies, from those for distribution of food and merchandise, both dry and refrigerated, for refuelling, for mounting road cleaning and sanitation tanks, to those for transporting people with reduced mobility, platforms with open trailer bodies (with or without tipper and crane), among many others.

The new lower and shorter cabin of the new generation of trucks reinforces the idea of flexibility and versatility even further, and it optimises integration with any kind of bodywork to the maximum.



# Other Applications

Thanks to its versatility and technology, the Irizar ie truck provides a large number of possibilities and uses for services provided in urban and suburban settings. Some of them are listed below.



Shipping Container



Tanker



Commercial delivery (2 axles)



Commercial delivery (with or without wheel covers)



Construction waste tipper



Crane platform

# For a better life: Our vision of the future

We're committed to protecting the environment and well-being, as well as people's health and to creating better urban environments.

We pay close attention to reducing noise pollution and achieving lower levels of consumption to have lower costs and develop zero-emissions vehicles. All those goals intend to improve people's quality of life and the quality of the environments where we work.



## Zero direct emissions

Year after year, our buses avoid tons of atmospheric emissions.



## Noise reduction

Electric technology eliminates motor noise, which means external acoustic emissions when stopping and starting are zero (0 dBA).



## A green energy plant

The energy consumed in our plant comes from a photovoltaic solar energy farm, which makes it the first European electromobility factory to operate with 100% sustainable energy.



## Eco-design

We continuously research and develop new technologies for manufacturing vehicles and new materials that make it possible for the company to position itself at the vanguard of eco-design in its sector with environmentally sustainable products.



## Eco-efficiency

We make progress in the areas of energy efficiency, optimising waste handling and reducing the environmental impact caused by our activities and products.



## Eco-innovation

We constantly supervise our innovation projects to replace technologies and materials with more environmentally friendly alternatives and to reduce and limit consumption and emissions of gasses that are harmful to the atmosphere.



## Lifecycle

We innovate and develop our own sustainable and eco-innovative products and technologies with a holistic approach, in order to minimise environmental impact throughout the life cycle, from extracting the raw materials and manufacturing components to how vehicles are used and the entire process until the end of their useful life. In 2019, we obtained the first Environmental Product Declaration (The International EPD System), which made us the first company in the sector worldwide to achieve this certification.



## Commitment

We encourage responsible energy consumption, and we promote everyone's commitment to environmental, social and economic sustainability.



## Circular economy

We promote and integrate the reuse of waste materials and other waste in collaboration with other organisations. Along those lines, we can highlight the creation of the IZIR circular economy brand in late 2019.

We offer a second life to batteries under a partnering agreement with Ibil, by which the batteries that complete the service life cycle can be reused in buses for energy storage, together with the power electronics associated with this application, in the charging infrastructures that Ibil is developing and deploying in Repsol service stations, among others.



## Irizar Group Technology

Our strategy consists of developing and manufacturing our own technology to provide our clients with pioneering solutions and get a head start on the challenges of the future.

The technological capacity of the Irizar Group and collaborations with the best research centres let us provide top-notch products and services with 100% European technology.

The new vehicles have third generation batteries by the Group with higher energy density that makes it possible to

have more on-board energy with a lower weight and volume. As a result, this new generation battery stores up to 512 kWh and provides up to 400 km of autonomy, depending on use.

Our battery packs meet the latest European regulations for electrical, thermal and mechanical safety. R100.v2, R10.v5 and UN38.3.

- Internal battery manufacturing
- Irizar charging systems
- Electric drive system
- Driver assist system
- Doors
- Air-conditioning system





## Irizar charging systems

*We provide different smart charging options to respond to different client conditions regarding power limitations and spatial or operational restrictions.*

Charging is done using a double combined tube. Consequently, vehicles can be slow charged from 30 kW to 180/350 kW with both exterior and interior models.

The Irizar Group's charging solutions are interoperable in accordance with the ISO 15118, DIN70121, OCPP 1.6, EC emblem, EMC, 61000-62, 61000-6-4, IEC 61851 and IEC 61000 standards.

### **CNG Range Extender Option**

For intercity applications a range extender can be used that makes it possible to lengthen trips with a motor that runs with compressed natural gas.

### **Irizar charging systems**

The range of options we offer makes it possible to respond to various client needs regarding power limitations and space restrictions: in-garage charging, opportunity charging built into the roof or inverted pantographs.

The Irizar smart charging system is a control centre that efficiently manages all the charging conditions or restrictions in the garage. The system identifies the different charge requirements of each bus in order to optimise the total power required.

## Turnkey solutions

We provide completely personalised turnkey solutions designed and created to respond to the needs of our clients.

The service network is the process of expansion and every place where the vehicles operate currently has a garage certified with the Irizar guarantee.

At Irizar we have decided to create an exclusive high-quality for after-sales in the cities that adopt our electromobility systems with personalised R&M (repair and maintenance) packages.

### Irizar does it for you

*Custom study of the service lines of an operator (operational data, speed, climate, topography, etc.)*

*Proposal for **optimising service operations***

*Consulting about the on-board power needed, optimisation strategy*

*Consulting about optimum power configuration, **charging strategy, charging time, useful life of batteries***

*Civil Works*

*Deploying and commissioning the system*

*Optimising **end of life management***

*Integral monitoring and maintenance*

***Updates for incorporated systems to optimise the useful life of every vehicle to improve the value of your assets***





# Irizar ie truck 4x2 - New Generation Technical Data

Cabin	
Type	Low cabin with a single access stair (370 mm)
Driver's seat	Ergonomic seat with pneumatic suspension. Adjustable lumbar support. 3-point safety belt
Passenger seat	Capacity up to 3 seats 3-point safety belt
Climate Control	Electric climate control (heating/air conditioning)
Door	Pneumatic swinging door
Optional rearview mirrors with cameras	Yes
Propulsion	
Type	Synchronous electric motor with permanent magnets.
Nominal power	236 kW
Rated Torque	3,000 Nm
Energy storage system*	
Battery technology	NMC Lithium-ion
<ul style="list-style-type: none"> <li><b>Maximum installed power</b></li> </ul>	up to 512 kWh
<ul style="list-style-type: none"> <li><b>Charging power</b></li> </ul>	up to 350 kW
<ul style="list-style-type: none"> <li><b>Range</b></li> </ul>	up to 400 km
<ul style="list-style-type: none"> <li><b>Charging time:</b></li> </ul>	2-4 hours at 150 kW
Axles	
Front axle	Irizar 9Tn
Drive Axle	Irizar 13 Tn
Wheels	11.75 x 22.5 (Front) / 9.00 x 22.5 (Rear)
Wheels	385/55-22.5 (Front) / 315/70-22.5 (Rear)
Suspension	
Front suspension	Pneumatic
Rear suspension	Pneumatic

Brakes	
Service brake	Pneumatic activated disks
Electric brake	With energy regeneration for recharging the batteries
Active safety	ESP and ADAS
Output	
Maximum speed (km/h)	93 km/h / auto-limited to 85 km/h
Maximum slope	>16% at 19 Tn (at start)

Safety and regulation	
Compliance with Regulation R29	
Driver area in accordance with ISO16121, VDV234 and EBSF	
Creepage function: assistance when starting	
Hillholder function: Keeps the vehicle stopped for a few seconds when it is on a slope so it does not roll backwards	
Electromagnetic compatibility regulation R10	
Built-in AVAS (Acoustic Vehicle Alerting System) according to the R138 regulation	

<b>A - Distance between axles</b>	4,000 mm	4,500 mm	5,000 mm
<b>B - Total length</b>	≥ 7,062 mm	≥ 7,562 mm	≥ 8,062 mm
<b>C - Front overhang</b>	1,987 mm	1,987 mm	1,987 mm
<b>D - Rear overhang</b>	≥ 1,075 mm	≥ 1,075 mm	≥ 1,075 mm
<b>E - Approach angle</b>	11°	11°	11°
<b>F - Departure angle</b>	15°	15°	15°
<b>G - Maximum cabin height</b>	2,850 mm	2,850 mm	2,850 mm
<b>H - Cabin access step height</b>	370 mm	370 mm	370 mm
<b>I - Distance front axle / rear cabin wall</b>	410 mm	410 mm	410 mm
<b>J - Chassis stretcher to floor height</b>	992 mm	992 mm	992 mm
<b>K - Maximum cabin width</b>	2,540 mm	2,540 mm	2,540 mm
<b>L - Chassis stretcher width</b>	850 mm	850 mm	850 mm

\* This data may vary depending on the laws of each country

# Irizar ie truck 6x2 Technical Data

Cabin	
<b>Type</b>	Low cabin with a single access stair (370 mm)
<b>Driver's seat</b>	Ergonomic seat with pneumatic suspension. Adjustable lumbar support. 3-point safety belt
<b>Passenger seat</b>	Capacity up to 3 seats 3-point safety belt
<b>Climate Control</b>	Electric climate control (heating/air conditioning)
<b>Door</b>	Pneumatic swinging door
<b>Optional rearview mirrors with cameras</b>	Yes
Propulsion	
<b>Type</b>	Synchronous electric motor with permanent magnets.
<b>Nominal power</b>	236 kW
<b>Rated Torque</b>	3,600 Nm
Energy storage system*	
<b>Battery technology</b>	Lithium-ion
<b>Fast NMC Nano charging (with range extender)</b>	
• <b>Maximum installed power</b>	up to 170 kWh
• <b>Charging power</b>	up to 300 kW
• <b>Range</b>	up to 350 km
• <b>Charging time:</b>	1 hour at 150 kW
Axles	
<b>Front axle</b>	Irizar 9 Tn
<b>Drive Axle</b>	Irizar 13 Tn
<b>Rear drive axle</b>	Irizar 8 Tn
<b>Wheels</b>	11.75 x 22.5 (Front) / 9.00 x 22.5 (Rear)
<b>Wheels</b>	385/55-22.5 (Front) / 315/70-22.5 (Rear)
Suspension	
<b>Front suspension</b>	Pneumatic
<b>Rear suspension</b>	Pneumatic

Brakes	
<b>Service brake</b>	Pneumatic activated disks
<b>Electric brake</b>	With energy regeneration for recharging the batteries
<b>Active safety</b>	ESP and ADAS
Output	
<b>Maximum speed (km/h)</b>	93 km/h / auto-limited to 85 km/h
<b>Maximum slope</b>	>16% at 29 Tn (at start)

Safety and regulation	
<b>Compliance with Regulation R29</b>	
<b>Driver area in accordance with ISO16121, VDV234 and EBSF</b>	
<b>Creepage function: assistance when starting</b>	
<b>Hillholder function: Keeps the vehicle stopped for a few seconds when it is on a slope so it does not roll backwards</b>	
<b>Electromagnetic compatibility regulation R10</b>	
<b>Built-in AVAS (Acoustic Vehicle Alerting System) according to the R138 regulation</b>	

<b>A - Distance between axles</b>	3,300 mm	3,500 mm	3,700 mm	3,850 mm	4,000 mm	4,500 mm
<b>B - Total length</b>	≥ 7,800 mm	≥ 8,000 mm	≥ 8,200 mm	≥ 8,350 mm	≥ 8,500 mm	≥ 9,200 mm
<b>C - Front overhang</b>	1,995 mm	1,995 mm	1,995 mm	1,995 mm	1,995 mm	1,995 mm
<b>D - Rear overhang</b>	≥ 850 mm	≥ 850 mm	≥ 850 mm	≥ 850 mm	≥ 850 mm	≥ 850 mm
<b>E - Approach angle</b>	11°	11°	11°	11°	11°	11°
<b>F - Departure angle</b>	15°	15°	15°	15°	15°	15°
<b>G - Maximum cabin height</b>	3,665 mm	3,665 mm	3,665 mm	3,665 mm	3,665 mm	3,665 mm
<b>H - Cabin access step height</b>	370 mm	370 mm	370 mm	370 mm	370 mm	370 mm
<b>I - Distance front axle / rear wall cabin</b>	770 mm	770 mm	770 mm	770 mm	770 mm	770 mm
<b>J - Chassis stretcher to floor height</b>	992 mm	992 mm	992 mm	992 mm	992 mm	992 mm
<b>K - Maximum cabin width</b>	2,540 mm	2,540 mm	2,540 mm	2,540 mm	2,540 mm	2,540 mm
<b>L - Chassis stretcher width</b>	850 mm	850 mm	850 mm	850 mm	850 mm	850 mm

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Battery technology	NMC Lithium-ion
<ul style="list-style-type: none"> <li>Maximum installed power</li> </ul>	up to 512 kWh
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<ul style="list-style-type: none"> <li>Range</li> </ul>	up to 400 km
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Electromagnetic compatibility regulation R10	
Built-in AVAS (Acoustic Vehicle Alerting System) according to the R138 regulation	

<b>A - Distance between axles</b>	3,300 mm	3,500 mm	3,800 mm	4,000 mm	4,500 mm
<b>B - Total length</b>	≥ 7,175 mm	≥ 7,375 mm	≥ 7,675 mm	≥ 7,875 mm	≥ 8,375 mm
<b>C - Front overhang</b>	1,987 mm	1,987 mm	1,987 mm	1,987 mm	1,987 mm
<b>D - Rear overhang</b>	≥ 537 mm	≥ 537 mm	≥ 537 mm	≥ 537 mm	≥ 537 mm
<b>E - Approach angle</b>	11°	11°	11°	11°	11°
<b>F - Departure angle</b>	15°	15°	15°	15°	15°
<b>G - Maximum cabin height</b>	2,850 mm	2,850 mm	2,850 mm	2,850 mm	2,850 mm
<b>H - Cabin access step height</b>	370 mm	370 mm	370 mm	370 mm	370 mm
<b>I - Distance front axle / rear wall cabin</b>	410 mm	410 mm	410 mm	410 mm	410 mm
<b>J - Chassis stretcher to floor height</b>	992 mm	992 mm	992 mm	992 mm	992 mm
<b>K - Maximum cabin width</b>	2,540 mm	2,540 mm	2,540 mm	2,540 mm	2,540 mm
<b>L - Chassis stretcher width</b>	850 mm	850 mm	850 mm	850 mm	850 mm



# Irizar Group

Irizar is a business group with an international presence in the sectors of passenger transport, electromobility, energy, electronics, electric motors and generators and connectivity.

The Group has six members (Irizar, Irizar e-mobility, Alconza, Hispacold, Masats and Jema) that together have 13 production plants in Spain, Morocco, Brazil, Mexico and South Africa and their own R&D centre whose goal is applied research and technological development for the Group's products and systems.

Founded in 1889, today the Irizar Group is a solid group made up of 3000 people that is geographically and industrially diversified and in constant growth and they are firmly committed to the brand, technology and sustainability.

Strategically, the Irizar Group is committed to battery and fuel cell technologies to reach the goal of zero-emissions. The Irizar Group's roadmap in terms of technology includes

developing and manufacturing coaches in the short-term, especially vehicles that cover large distances between charging stations powered by hydrogen fuel cells.

That technology will gradually be extended to the rest of Irizar's line of vehicles (buses and trucks for urban applications).

Technology is key to the Group's strategy and positioning to drive innovation and create their own high technology in strategic sectors with the goal of providing pioneering solutions that can be used to tackle future challenges successfully and have a positive impact on creating wealth and employment and developing society and the economy.

## Sectors and Business Activities

### Passenger transport

Irizar intends to become a key actor in developing technical and intelligent collective transport solutions. Their product portfolio includes zero-emissions electric buses and diesel, biofuel, natural gas, HVO, hybrid, bio-diesel and B100 coaches.

### Electrical

Jema Energy, one of the companies in the Irizar Group, is primarily concerned with designing and manufacturing power sources for Big Science, and converting renewable energies, like solar, wind and hydroelectric, that are suitable for storage and injection into the grid.

They are primarily focused on three business areas: nuclear fusion, renewable energies and energy storage.

### Electronics

Jema also operates in power electronics applied to grid quality and transport in such diverse sectors as buses and coaches, renewable energies and BESS. In the sector of buses and coaches it develops 100% multiplexed electronic architecture that makes every system intelligent to provide new functionality, reduce wiring and facilitate vehicle diagnostics. The AEB-LDW driving assistance systems and the HMI console are also worth highlighting.

### Motors and generators

Alconza develops and manufactures drive systems and energy generation systems for the marine, hydraulic and industrial sectors. The traction inverters as well as the electronics (ECU) that control the entire traction system are designed, manufactured and programmed by Jema.

### Connectivity

We have intelligent driving assistance systems and a wide range of optional equipment to provide an optimum means of transport for drivers and passengers. Their extensive experience in artificial vision and deep learning lets them provide systems for fleet management, preventive and predictive maintenance and self-driving.

### Electromobility

We provide integral electromobility solutions for cities, both in regards to manufacturing 100% electric zero-emissions vehicles and manufacturing and installing the primary infrastructures needed for charging, drive and energy storage. All of that is the outcome of applying the Group's European technologies and it has the Irizar guarantee and quality of service.

The current range of Irizar e-mobility vehicles includes three models: Irizar ie bus, Irizar ie tram, and Irizar ie truck.

They have a green energy production plant exclusively dedicated to electromobility, the first of its kind in Europe, which has its own trial tracks and test benches.



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BETTER  
LIFE

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