



**PEI  
MOBILITY**

*Performing gangway*



*Interconnection Solutions*

**PRODUCT  
CATALOG**





# PEI MOBILITY

*Performing gangway*

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# COMPANY PROFILE

**PEI Mobility**, a brand of **P.E.I. Group**, world leader in machine tool protections, was founded in 2005 as a manufacturer of bellows for articulated buses.

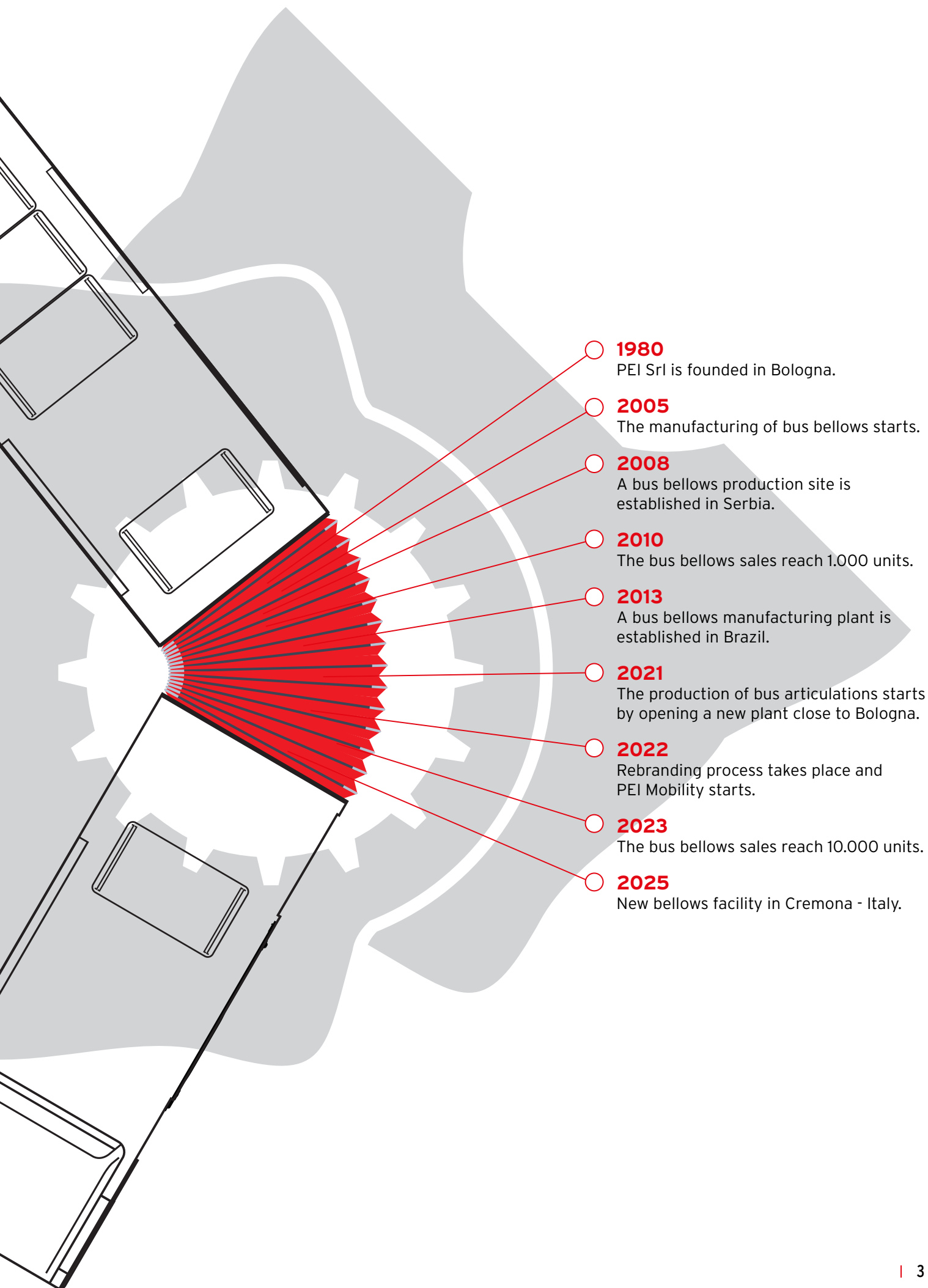
Through years of dedicated activity and significant success, PEI Mobility has become a global leader, with **over 14,000 bellows currently in operation across Europe and worldwide.**

This consolidates our prominent position in the international market, supported by production plants in **Serbia** and **Brazil** operating under the guidance of our **Bologna headquarters.**

PEI Mobility offers a comprehensive range of **articulation systems** suitable for every chassis type, manufactured using the **most innovative production techniques.** We deliver **bespoke solutions** that guarantee **maximum safety, exceptional endurance, and ease of maintenance.**

Our commitment to flexibility and efficiency is underpinned by extensive engineering experience, **advanced R&D, quality certifications, and stringent testing.**





# COMPLETE GANGWAY

Complete technologically advanced interconnection system to increase the overall efficiency of the articulated bus.

1

## **Fabric**

Bellows made of UV-resistant copolymer, complying with the highest safety and application certificates in the automotive field.

2

## **EGS: Energy Guiding System**

External hose guiding system. Designed for high-voltage cables of electric vehicles with fixing brackets ready for assembly of all cables between carriages.

3

## **HGS: Hoses Guiding System**

Internal complete hose guiding system with fixing brackets ready for assembly of all cables between carriages.

4

## **Cover Plate**

Anodised aluminium platform distinguished by a minimal design for comfortable passage of people.

5

## **Articulation**

Articulation in cast iron or steel, complete with hydraulic control system of stability.

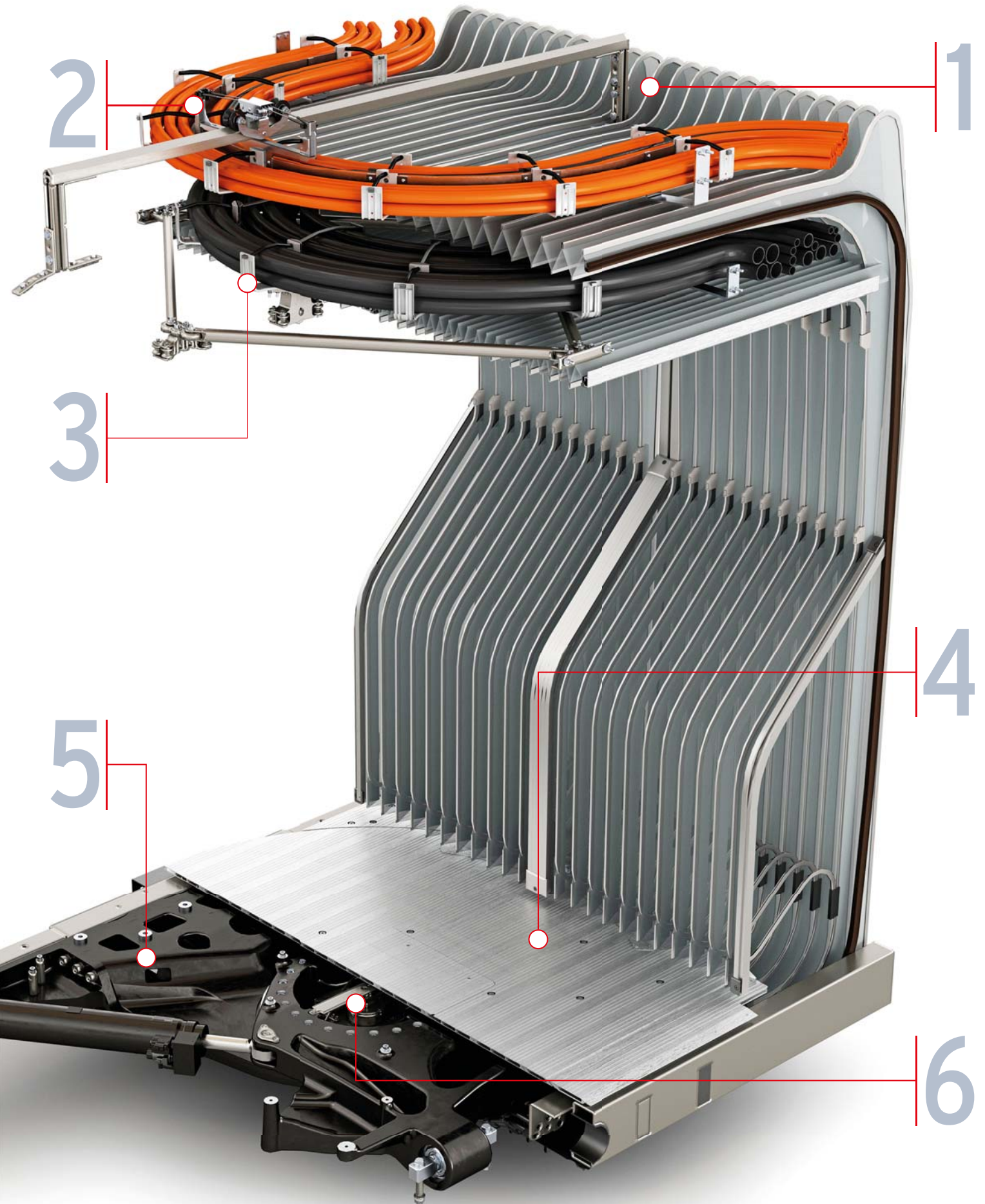
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## **Stability Control Unit**

The Stability Control Unit (SCU) communicates with the vehicle and allows real-time adjustment of the hydraulic system.





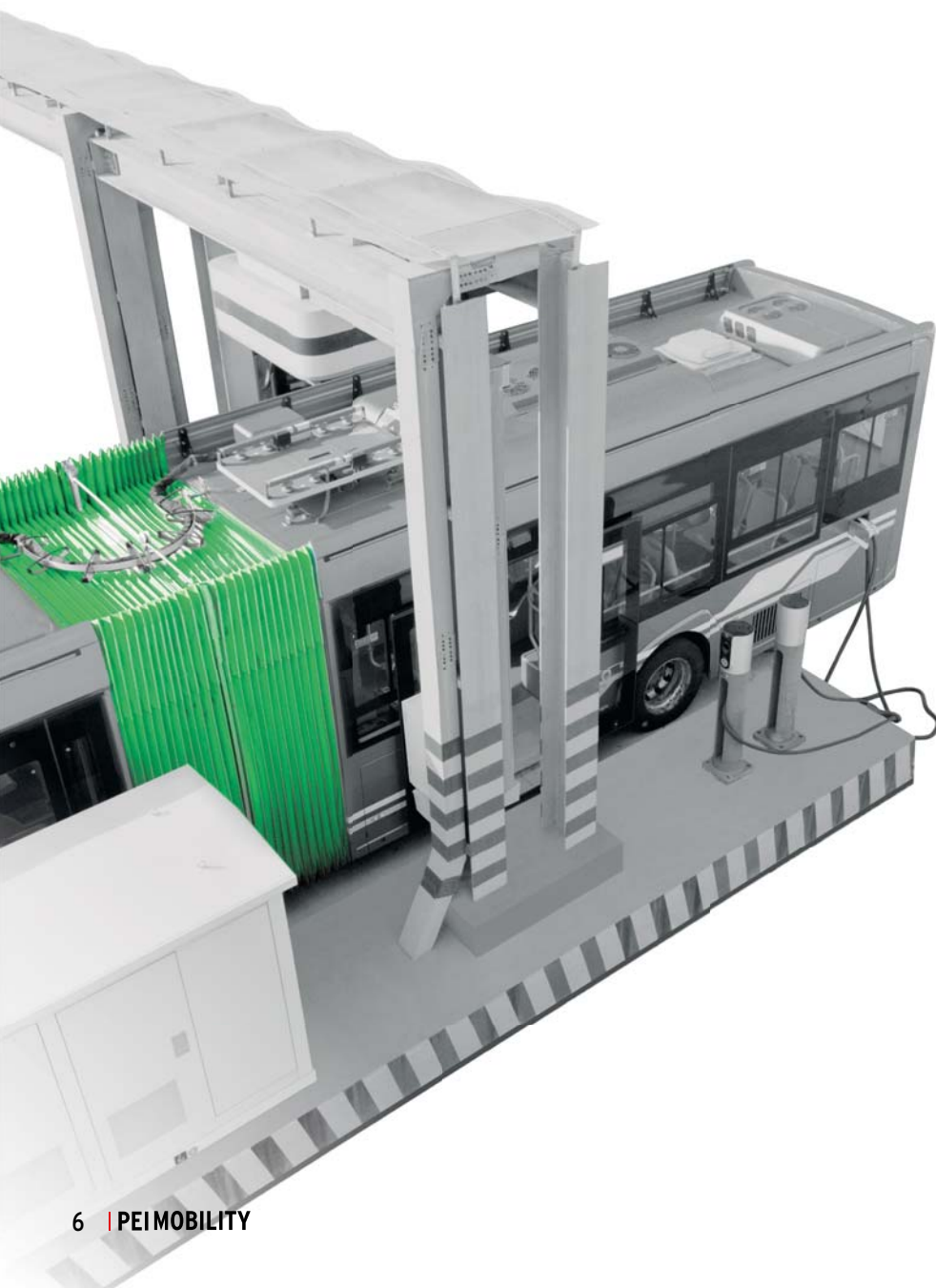


# THE NEW-GEN ARTICULATION SYSTEM



Times have changed, and the market is increasingly focused on electric mobility and environmental and social sustainability, undergoing an unprecedented shift towards passenger comfort.

Consequently, the structure of buses is also changing: the transition from endothermic engines to electric motors allows, for example, a different use of space inside the vehicle.



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PEI Mobility offers a comprehensive range of advanced articulation systems that not only align with current global trends in electric mobility and sustainability but are also designed to be future-proof.

We are ready to support clients who want to upgrade their existing fleets for the transition to electric power. At the same time, our expertise allows us to partner with manufacturers from the earliest design phases of “native electric” articulated buses, ensuring optimal performance, safety, and passenger comfort.

With our solutions, clients benefit from:

**Flexibility:** Adaptation to both retrofit projects and brand-new electric platforms.

**Reliability:** Proven systems designed for durability and efficiency in demanding urban transit environments.

**Innovation:** Continuous development to meet evolving standards of sustainability and mobility.

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# CAST IRON ARTICULATION



## CI695

**Cast iron structure for greater efficiency and reliability, suitable for large volumes.**

Independent shock absorbers ensure better vehicle stability control.

Elastic joints offer better vibration damping, resulting in greater passenger comfort.

Fastening systems featuring sliding pads guarantee platform a long working life.

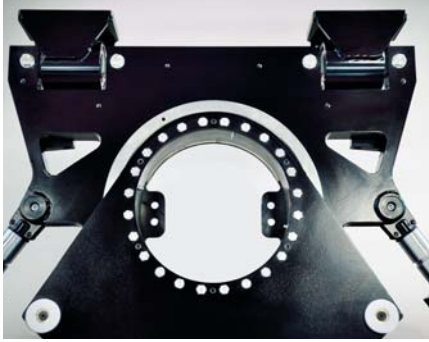
Special fastening systems for self-lubricated cylinders mean low maintenance.

Suitable for both low- and high-floor buses.

Supplied complete with bulkheads, for perfect integration with the vehicle frame.



# WELDED STEEL ARTICULATION



## W350

**Welded sheet metal articulation: extensive range of customisation options offered to meet all market requirements.**

Compact version, with smaller slewing ring.

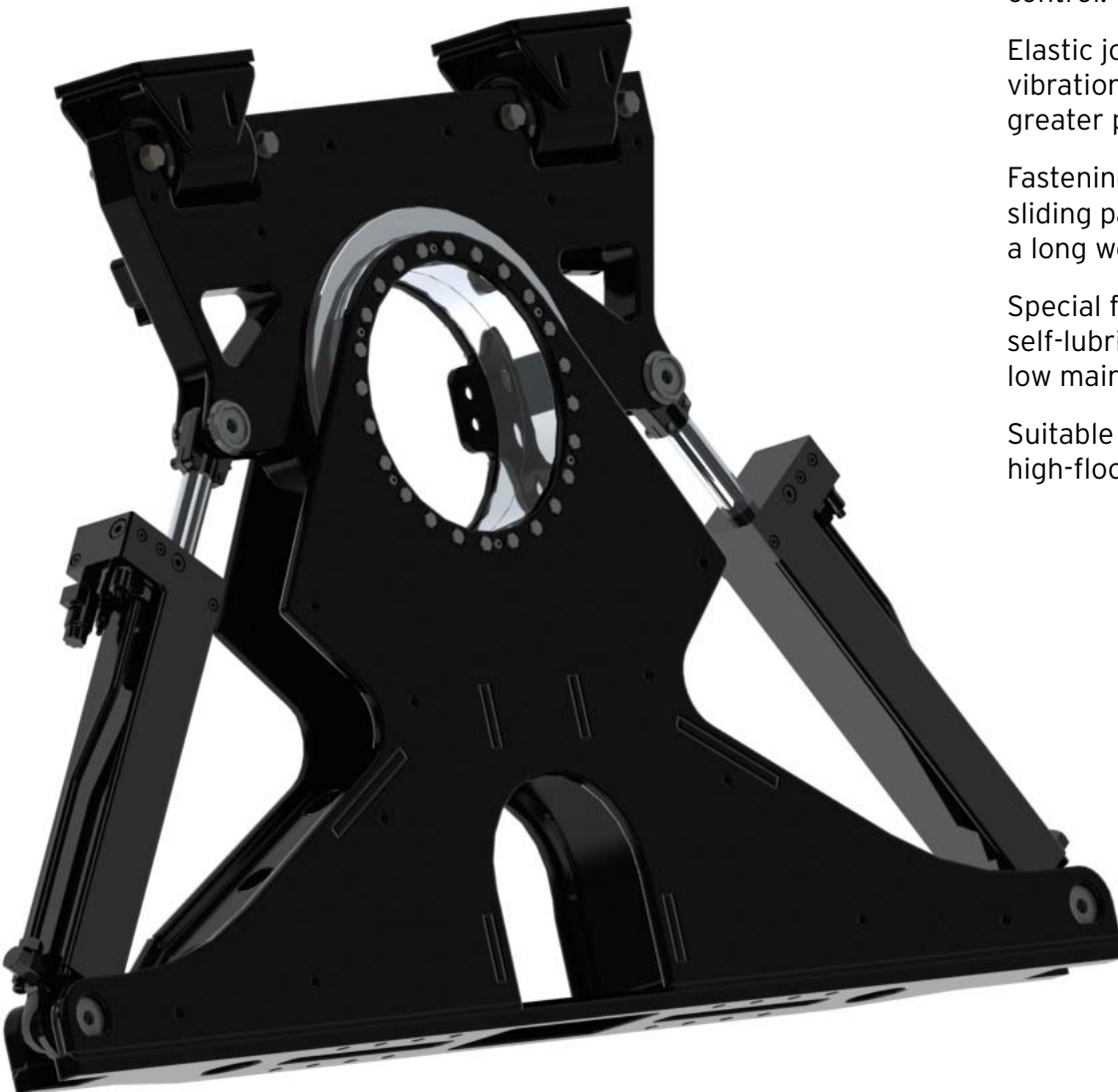
Independent shock absorbers ensure better vehicle stability control.

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Special fastening systems for self-lubricated cylinders mean low maintenance.

Suitable for both low- and high-floor buses.



# ARTICULATION FOR PULLER VEHICLES



## W695P

Joint dedicated to 'puller' vehicles with a different traction: an essential but also reliable system, deriving from a technology with roots in the past, which today finds new applications in electric-powered articulated mobility, where lightness and high performance feature ever more important targets.

Innovative, patent-protected bearing fastening system ensures more efficient operation and consequently a lighter structure.

Elastic joints offer better vibration damping, resulting in greater passenger comfort.

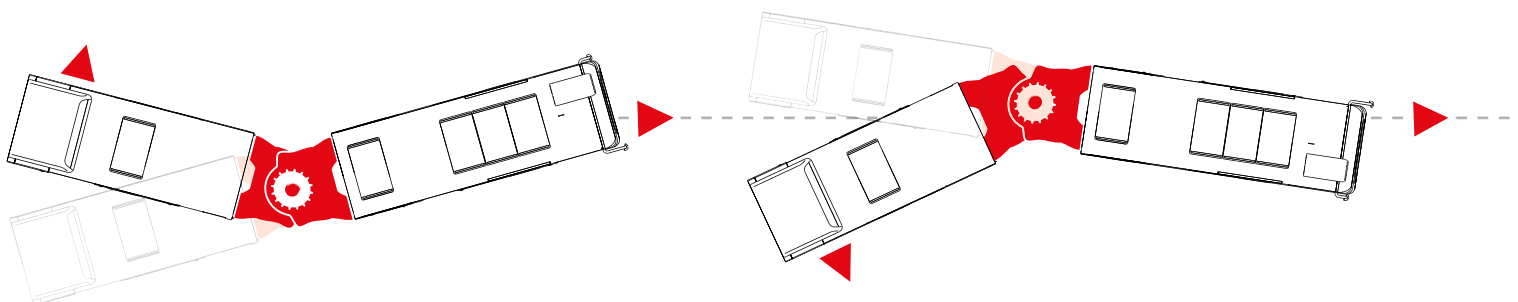
Fastening systems featuring sliding pads guarantee platform a long working life.

Suitable for both low- and high-floor buses.

Supplied complete with bulkheads, for perfect integration with the vehicle frame.



# THE HEART OF BUS ARTICULATION SYSTEM





# STABILITY CONTROL UNIT



PEI Mobility's bus articulation systems come equipped with microprocessor-controlled electronics.

The control unit (SCU), entirely designed by PEI Mobility, is supplied with our articulation systems and communicates with the vehicle.

This allows it to adjust the hydraulic system in real-time and control the vehicle's behavior in potentially critical situations.

The SCU keeps the vehicle stable on slippery surfaces or during sudden maneuvers.

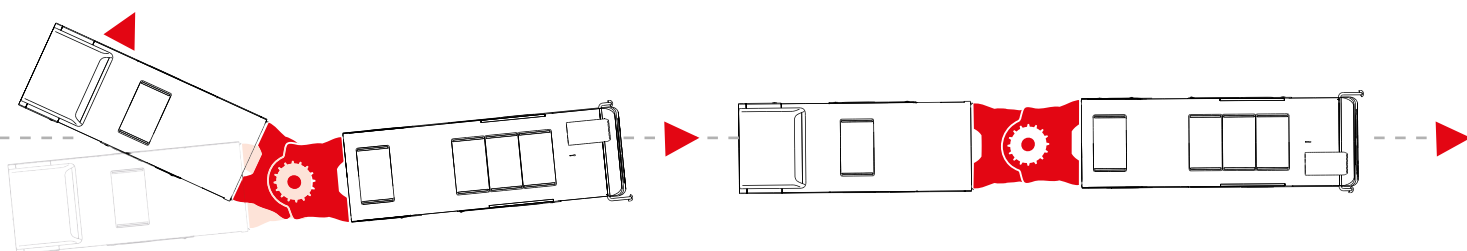


## CYBER SECURITY PROTECTION



- Compliant to ECE-R155, ECE-R156 and ISO 21434:2021 (Cybersecurity)
- Unified diagnostic services (UDS compliant to the ISO 14229 series)
- Secure CAN Transceivers
- Availability of all diagnostic services and features provided by the UDS standard including flash reprogramming, authentication procedures and Advanced Secure Diagnostics.

PEI Mobility thus commits to solve one of the main issues relating to the design of buses, the event known as "jack-knife".



JACK-KNIFE, TYPICAL OF THE ARTICULATED VEHICLES



# RESEARCH AND DEVELOPMENT

Even with two decades of experience, PEI Mobility has structured its engineering and design capabilities to meet modern demands.

This strategic approach gives us a privileged position in identifying new market trends, making us a company that is naturally driven by innovation.

Our gangway systems are designed and manufactured entirely in-house. This comprehensive approach allows us to develop solutions that anticipate future challenges, paving the way for urban mobility that is safer, more efficient, and more sustainable.

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The PEI Mobility range of articulations includes models suitable for all types of chassis. Efficiency and innovation are the cornerstones on which our R&D and production departments build their experienced work to offer high-quality products to the market.

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# MECHANICAL SIMULATION



Dynamic simulation is an essential virtual analysis and testing tool that has long supported physical testing in the automotive industry.

The design of urban buses, in particular, is an area of great research interest in the automotive world, driven by the need to optimize both performance and passenger safety and comfort.

To address this, the R&D department at PEI Mobility has long utilized advanced multi-body software to create solutions that optimize road transport. Through MBD (Multibody Dynamics) software, we can replicate road roughness and virtually test the articulation's behavior.

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The software precisely reproduces every part of the bus chassis, from axles and carriages to the passengers themselves. It provides key data and insights into vehicle instability during adverse situations. This allows us to use dynamic simulations and predictive testing to thoroughly examine the performance of our hydraulic damping system. For us, meeting the safety parameters set by the most authoritative certification bodies is an absolute priority. We also use Hardware-in-the-Loop (HIL) systems, which are ideal for dynamic product simulation, tailored to meet the specific needs of our clients.

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PEI Mobility's  
**NEW CONCEPT**  
is based on a  
technologically  
advanced  
articulation  
**WITH CARBON  
FIBRE.**

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# LOOKING AHEAD



The PEI Mobility R&D department has embarked on a journey into the future, through technology and production, heading for sustainability, efficiency, and innovation.

The latest innovation mainly concerns the use of **SMC (Sheet Moulding Compound)** technology in the design and construction of articulations.

The use of carbon fibre means joints are significantly lighter, which translates into lower fuel consumption, greater fuel autonomy, and less pollution.

The technology of these articulations, which are currently in the prototyping stage, is based on the combined use of carbon and steel.

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Innovative **SMC (Sheet Moulding Compound)** technology combines the advantages of carbon fibre, such as lightweight design and strength, with those of a fast, industrialisable process like press moulding.

Use of short fibres allows the creation of components with complex shapes keeping low costs and ensuring more efficient use of material.

The automated process guarantees products that remain the same over time, in terms of both shape and performance.

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# BELLOWS FOR BUSES

Crafted from the most advanced materials, our bellows feature patented systems that ensure optimal fastening to the carriage body. This guarantees ultra-smooth movement, greater reliability, and increased on-board comfort.

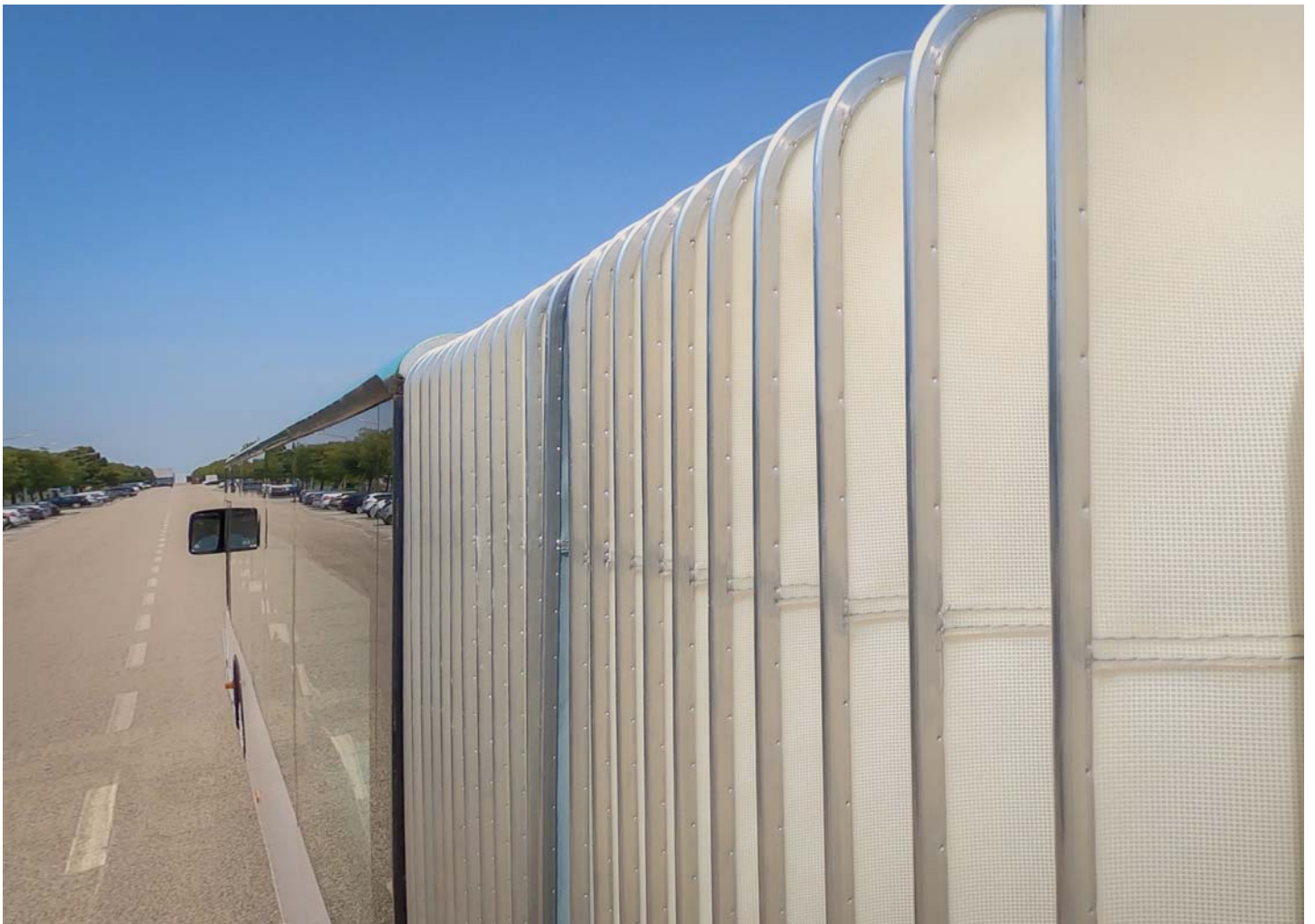
The translucent fabric turns a dark area into a bright and comfortable space. Many years of development in fabric technology allow us to offer customized colors to meet all our customers' needs.

Additionally, the integrated extension provides the product with an exclusive design and ensures it is uniquely easy to clean.

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PEI Mobility bellows are made from a UV-resistant copolymer that complies with the highest safety regulations in the automotive industry.

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# CUSTOMIZATION AND INNOVATION



Our bellows are custom-designed for each client, with tailor-made features that match the vehicle's specific geometry, both inside and out.

We offer extensive customization options. In addition to the standard grey, our bellows are also available in a wide range of colors to meet your needs.

The constant R&D activity of the PEI Mobility engineering team aims towards increasingly sustainable urban mobility, with solutions designed to guarantee maximum passenger comfort and safety, as well as resistance and ease of maintenance of bus components.

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Thanks to technical innovations in our fastening systems, we can create bellows with rounded lines, providing a better aesthetic look and greater functional comfort for passengers.

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# GUIDING SYSTEMS

PEI Mobility has designed a complete range of options for routing various types of cables and lines during vehicle movement.

These include high- and low-voltage electrical cables, data cables, pneumatic and hydraulic lines, and climate control lines.

## **HGS: Hoses Guiding System**

Internal complete hose guiding system with fixing brackets ready for assembly of all cables between carriages.

This cable chain protects the internal hoses during the vehicle movements: the cables can move freely in the space and are not bound to any guides.





Our systems are **Plug&Play** and come preassembled with fixing brackets. They are ready for running cables and lines between the carriages and can be installed either inside or outside the vehicle.



### **EGS: Energy Guiding System**

External hose guiding system, designed for high-voltage cables of electric vehicles with fixing brackets ready for assembly of all cables between carriages.

Our cart handling system with independent axes and cable support is patented, as well as the stabilizing sheet and cable support in deformable sectors made of harmonic steel.



# QUALITY & TESTING

We have in-house testing laboratories with highly specialized equipment. This allows us to perform product tests during both the R&D and production phases.

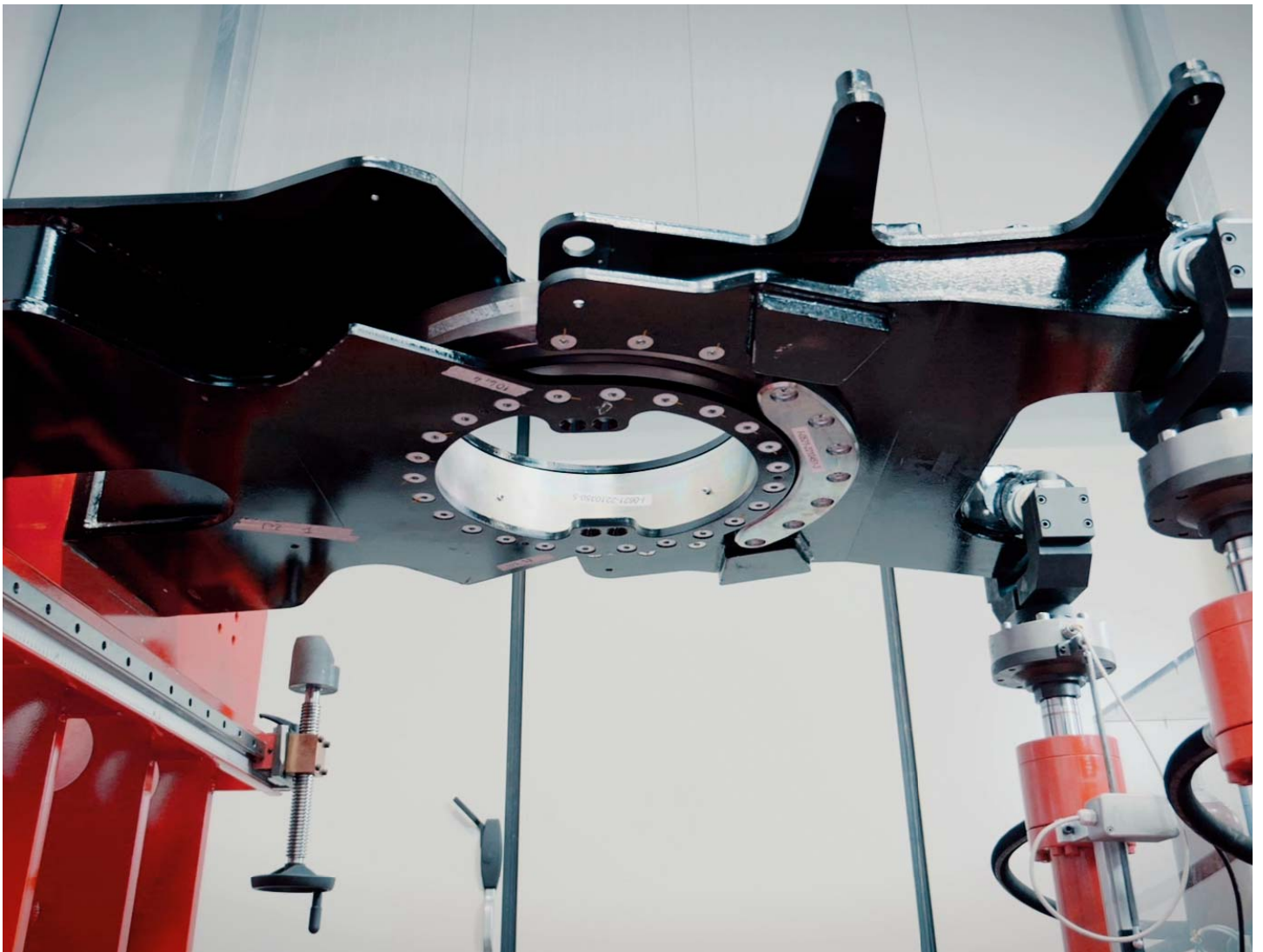
All tests are conducted in full compliance with the standards set by the International **Automotive Task Force (IATF)** and the **Verband der Automobilindustrie (VDA)**, which is a **Volkswagen-certified process**.

These standards are widely recognized and followed in the automotive industry.

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Additionally, our tests meet the technical requirements for vehicle construction specified in UN-Regulation No. R118-2.

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Beyond design, simulation, and laboratory testing, PEI Mobility verifies its products directly on the road.

We have partnered with **IDIADA**, a globally recognized proving ground, to conduct tests at their endurance track in Tarragona, Spain.

The tests were performed with very positive results, allowing us to accurately assess the strength, material fatigue, and long-term reliability of our components.

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Using advanced actuators, we can simulate a variety of road conditions to perform rigorous tests on our products. This ensures the highest level of performance and durability.

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# SUSTAINABILITY & CERTIFICATIONS

At PEI Mobility, we are guided by a deep commitment to sustainability. Our cutting-edge technologies enhance the quality and functionality of our gangway systems and help reduce vehicle's pollutant emissions.

Our investments in R&D are driven by these principles, with a clear goal: to combine technological performance, innovation, and sustainability in every solution we develop.

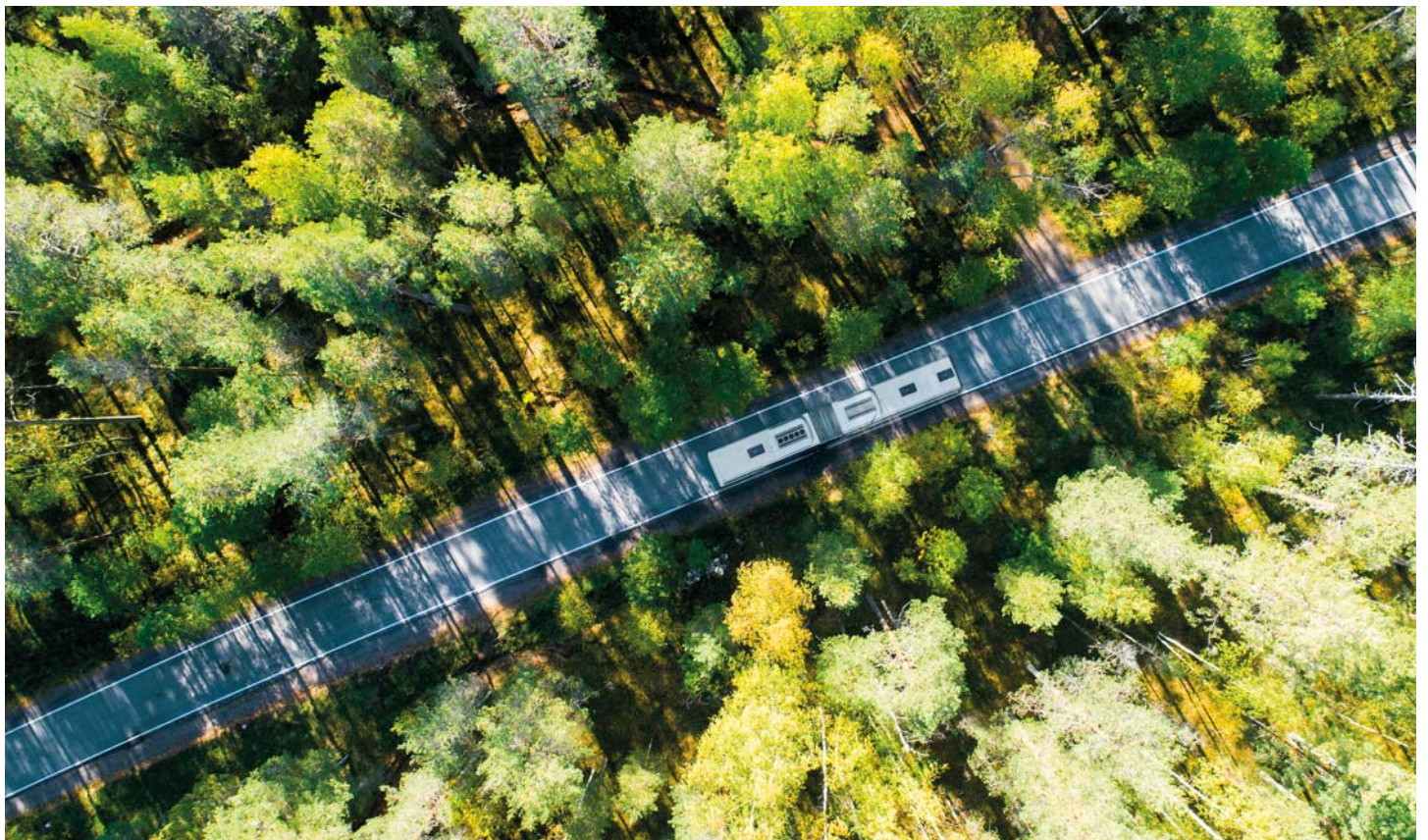
We are fully aware of our responsibilities both within and outside the company. Protection and safeguard of our people and the environment take place through a robust, three-pillar model, involving:

- The accountability of our **Code of Conduct**
- A strict **Environmental Policy (ISO 14001) for Health and Safety**
- Production processes focused on **material conservation**

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Our tangible commitment is further demonstrated by our photovoltaic plant, which generates one gigawatt of energy, and our use of recycled materials, especially fabrics.

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Our commitment to quality, environmental management, and safety is demonstrated by our certifications, which include **ISO 14001, ISO 9001, and IATF 16949:2016.**

In addition, our products are built to comply with the highest international standards.

This embraces full compliance with **ECE-R155, ECE-R156, and ISO 21434:2021** for cybersecurity, as well as **ECE R118** for fire resistance.

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Our systems also utilize Secure CAN Transceivers and are fully compliant with the Unified Diagnostic Services (UDS) standard from the **ISO 14229** series, ensuring the availability of all diagnostic services and features, including flash reprogramming, authentication procedures, and advanced secure diagnostics.

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**UNECE**



# GLOBAL PRESENCE



Our commitment to global excellence is supported by a robust international structure. We have strategically established production plants in Italy, Serbia, and Brazil to ensure agile and efficient manufacturing that can meet diverse market needs.

This strong industrial base is complemented by an equally extensive commercial network, which provides dedicated support and expertise to clients across Europe, the Americas, Africa, and the Middle East.

This global footprint allows us to deliver high-quality solutions and exceptional service no matter where our clients are located.



 MANUFACTURING PLANTS

 EXPORT MARKET







*Connecting Motion, Shaping the Future*

**PEI Mobility brand of P.E.I. Srl**

*Headquarter*

Via Torretta 32-32/2-34-36  
40012 Calderara di Reno, Bologna - Italy

*Articulations Plant*

Via Fratelli Rosselli, 11  
40069 Zola Predosa, Bologna - Italy

*Bellows Plant*

**SPER Srl**

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