



HEFES | Front-End Systems

One module, multiple functions

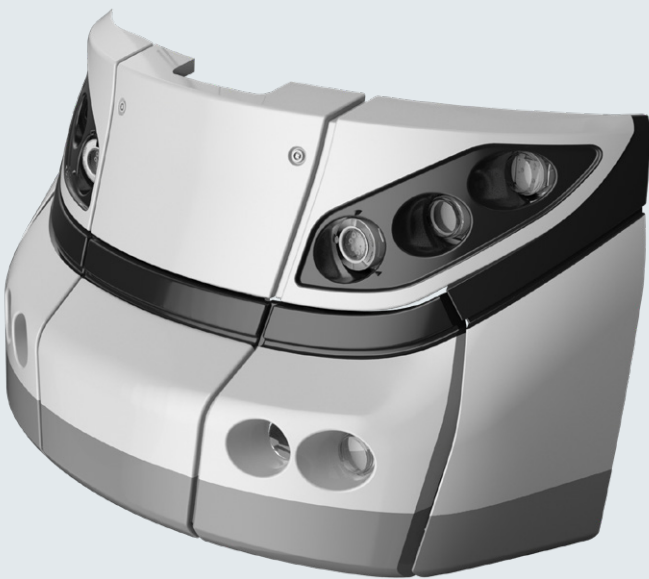
- Fully integrated front-end system combining bumper, kinematics, energy absorption and sensor technology
- For trams and light rail vehicles (LRV)
- Modular ready-to-install solution with clearly defined interfaces for simple vehicle integration
- Fewer interfaces, high system availability and reduced life cycle costs
- Suitable for both new vehicle platforms and modernization projects



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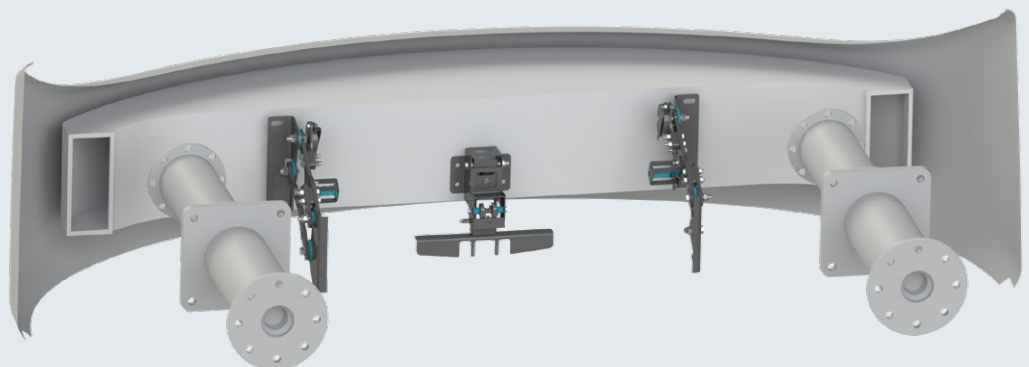
Complete Front End Solution

- Combines **bumper, kinematics, energy absorption** and **sensor technology**
- Reduces interfaces and engineering effort through a single system supplier
- Modular scope – complete systems or selected key components
- Highest safety level for passengers and personnel



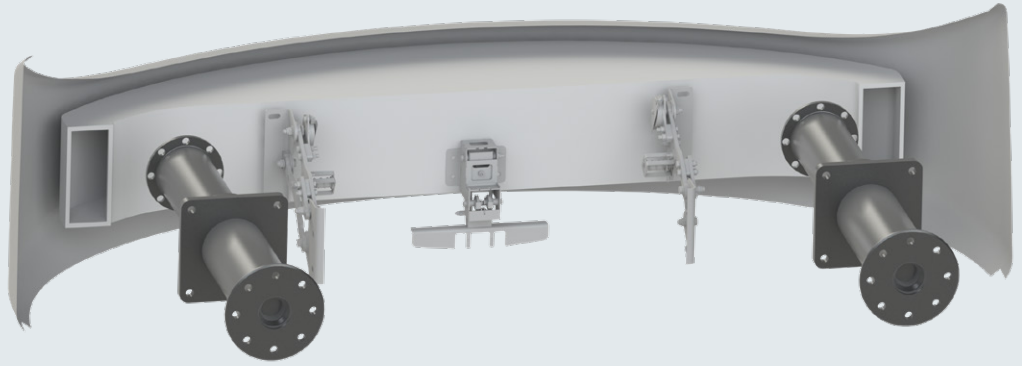
Bumper

- Available in glass fiber-reinforced plastic (GRP) or polyurethane (PU)
- Lightweight, corrosion-resistant and highly resilient design
- Tailored to vehicle-specific requirements and front-end concepts
- Manufactured with comprehensive expertise from design through final finishing
- Highest fire protection standards for enhanced safety
- Plug-and-play for simplified replacement of individual elements



Kinematics

- Vehicle-specific front-end kinematics for safe and reliable nose movement
- Supports maintenance access and coupling operations
- Robust design optimized for long service life
- Adaptable to different vehicle architectures



Energy Absorption

- Integrated crash management and energy absorption system
- Available with mechanical or hydropneumatic technologies
- Controlled energy dissipation for enhanced passenger and vehicle protection
- Modular integration into different vehicle concepts

Sensor Technology & System Integration

- Sensor technology integrated into the coordinated front-end system
- Seamless interaction between all front-end components
- Ready-to-install plug-and-play design
- Reduced interfaces and simplified vehicle integration

Lifecycle Benefits

- Fast replacement of damaged components after collisions
- High system availability throughout the vehicle lifecycle
- Short lead times through high vertical integration
- Lower maintenance effort and reduced lifecycle costs

Contact



Get in touch with our experts
for further information and
individual consultation.

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