

ROLLING STOCK GAUGE ASSESSMENT FOR RAIL VEHICLE DESIGN

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Summary: The rolling stock design in the European Union must comply with the Technical Specifications for Interoperability (TSIs), which outline the standards needed to guarantee the interoperability of the European Union's railway system. For that, the railway vehicle gauge is a key aspect since it is a reference contour that marks the limit that must not be exceeded by the rolling stock after having applied the associated rules for the calculation of all possible vertical and lateral displacements.

The investigation evaluates the gauge limit considering dynamic behaviour and geometric properties of the vehicle as a reference between rail vehicles and infrastructure, preventing collisions with both fixed structures and adjacent vehicles on parallel tracks. Furthermore, the study includes a comparison of the Iberian and interoperable Europe gauges, assessing its effects for both passenger and freight transport.

The reference gauge analysis follows the formulation presented in EN 15273-2 standard, in accordance with the reference rolling stock gauge, focusing on optimizing the design while guaranteeing interoperability of safer and efficient rolling stock.

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