

NORMATIVE AND ENGINEERING FRAMEWORK FOR THE DESIGN OF A NEW SMART WAGON: A CASE STUDY

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Summary: With transport policies being shaped by environmental requirements, rail transport stands as a key pillar for the future, with an expected increase in both freight volume and speed. The European Green Deal aims to double the volume of goods transported by rail by 2050, making it essential to develop optimized and efficient vehicles to maximize the installed capacity. The regulatory requirements for designing the structure of a freight wagon are established as an essential condition for obtaining certification. In addition to these, best engineering practices must also be considered. This article aims to provide a detailed and systematic presentation of the regulatory framework applied to the design of a real case study of an Sggrs(s) 80' wagon, outlining the necessary safety demonstrations to be conducted. A key focus is given to European standards EN 12663-1 and EN 12663-2, which define the structural requirements for freight wagons and the loads they must withstand.

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