

## BASIC CONCEPTS OF PASSIVE SAFETY OF HIGH-SPEED PASSENGER TRAINS AT CRASH COLLISIONS

The existing concepts of passive safety of passenger trains are analyzed considering requirements of the European Standard EN 15227 and the American Standard AAR S-580. Conceptual schemes of passenger trains of locomotive traction with passive safety systems are considered for the equipment of railway vehicles with separate impact-traction devices and automatic coupler drawbars, which can move back at emergency collisions with an obstacle. A concept of the German company EST Eisenbahn-Systemtechnik GmbH for passive safety of the passenger train operating on European railways is described. A concept of passive safety of the passenger train of locomotive traction for US railways is considered. The existing concepts of passive safety of a diesel passenger train of constant forming are analyzed. Different technical designs of the leading world companies, including Bombardier Transportation, Alstom, Dellner, Voith, Turbo Scharfenberg, Siemens, are presented. A design of passive safety of the SCRRRA Metrolink diesel train for US railways is examined. Designs of passive safety of electric trains Desiro RUS ("Swallow") and EKr1 operating on railways with 1520 mm gauge are given. Based on the results of world experience in passive safety of passenger trains at crash collisions, the basic concepts of passive safety of the high-speed train operating on railways with 1520 mm gauge are developed.

*Keywords: passive safety system, passenger rolling stock, crash collision.*

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