

## **Increasing the Forecasting Fidelity of Current Collection System Operating Capability by Means of Contact Pressure Simulation Modelling**

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**Abstract :** Current collection quality is one of the limiting factors when increasing trains movement speed in the rail sector. With the movement speed growth, the impact forces on the current collector from the rolling stock and the aerodynamic influence increase, which leads to the spread in the contact pressure values, separation of the current collector head from the contact wire, contact arcing and excessive wear of the contact elements. The upcoming trend in resolving this issue is the use of the automatic control systems providing stabilization of the contact pressure value. The present paper considers the features of the contemporary automatic control systems of the current collector's pressure; their major disadvantages have been stated. A scheme of current collector pressure automatic control has been proposed, distinguished by a proactive influence on undesirable effects. A mathematical model of contact strips wearing has been presented, obtained in accordance with the provisions of the central composition rotatable design program. The analysis of the obtained dependencies has been carried out. The procedures for determining the optimal current collector pressure on the contact wire and the pressure control principle in the pneumatic drive have been described.

**Keywords :** contact strip, current collector, high-speed running, program control, wear

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