

# Improvement of efficiency for dynamic soil compaction by vibratory rollers in construction of transport objects

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The article is devoted to important problem of numeric model investigation of dynamic deformation of soils as viscoelastic media which allow to describe the properties of wide variety of materials used in construction. The most widespread type of machines used for that in practice are vibratory rollers. The results of model investigation of influence of both stiffness of the work tool (roller's drum) and parameters of vibration on intensity of deformation of soil layer being compacted are presented in the article. New dependencies which allow to find rational range of stiffness for work tools of vibratory rollers were acquired. Q-factor of the corresponding oscillating system was chosen as a efficiency criterion for vibration energy use. Results of modeling allowed to design new type of road roller with widened range of drum stiffness. Results of computer modeling were completely proven by experimental data. Use of MATLAB SimMechanics package for modeling of that type of physical processes of construction mechanics was shown as a promising tool for design of new efficient types of construction machines.