

# ANALYTICAL METHOD FOR CALCULATING STRESS-STRAIN STATE OF RUBBER CORD PIPES WITH AXIAL DISPLACEMENT OF FLANGES

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To determine the performance characteristics of rubber-cord pipes under the influence of internal overpressure taking into account the relative displacement of the ends (flanges), an unconventional method of approximate analytical solution and the subsequent increase in the accuracy of calculating the stress-strain state of rubber-cord shells with tensile cord casing is used. The fundamental difference between the force created by the rubber cord pipe and the spacer force is taken into consideration. The calculation is compared with the results of experiments on fracture, the calculated value of the excess fracture pressure fits into the confidence interval of the spread of experimental data. Examples of constructing isobar power characteristics of sleeve-type pneumatic shock absorbers (sleeve tensile-compression shock absorbers) are shown and the features of their behavior are analyzed at different values of the operating and design parameters of the rubber cord pipe.

The results are intended for engineering calculations and the optimal design of rubber cord pipes used to connect pipelines, or as air shock absorbers to protect technical objects from vibration and shock.

**Keywords:** rubber cord pipe, linearized mathematical model, analytical solution, method for increasing the accuracy of calculations.

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