

**ENGINEERING METHOD TO CALCULATE VORTEX GENERATORS
PARAMETERS. PHYSICAL CAPABILITIES MODELING OF VORTEX
RING AND ITS SPREADING PARAMETR**

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High interest in the field of gas vortex rings investigations is determined by the perspectives of the development of devices, based on such an effect. Works to model and determine physical parameters of vortex ring are performed using numerical methods. Such methods give quite precise results, but they are very difficult in realization, and need verification, qualified programming and large time consumption for development.

As against, engineering approach gives a capability for a fast and simple preliminary estimation of the vortex ring parameters.

The report presents engineering methods for vortex ring generating estimation and its propagation in the air. Obtained results of the geometric characteristics and ring velocity calculations, as well as acoustic field, generating by the spray vortex generators, are in a good agreement with the experimental results of Russian and foreign researchers.

Engineering approach has been developed for:

- calculation of the spray vortex ring generators with the subsonic stream;
- calculation of the spray vortex ring generators with the supersonic stream;
- calculation of the vortex ring propagation in the air;
- estimation of the acoustic field, generating by the vortex generators.

Key words: vortex ring, engineering methods, spreading parameters.