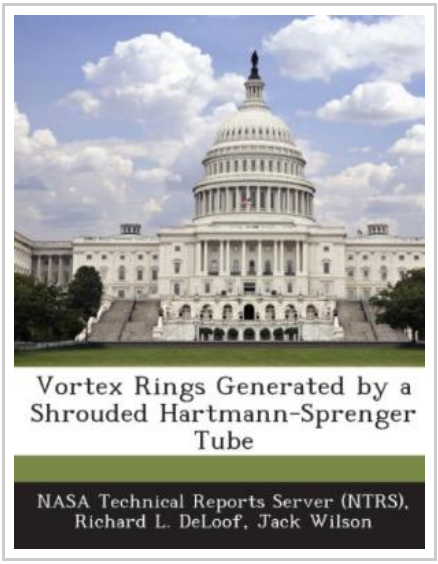

Vortex Rings Generated by a Shrouded Hartmann-Sprenger Tube

By JACK WILSON

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 24 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.The pulsed flow emitted from a shrouded Hartmann-Sprenger tube was sampled with high-frequency pressure transducers and with laser particle imaging velocimetry, and found to consist of a train of vortices. Thrust and mass flow were also monitored using a thrust plate and orifice, respectively. The tube and shroud lengths were altered to give four different operating frequencies. From the data, the radius, velocity, and circulation of the vortex rings was obtained. Each frequency corresponded to a different length to diameter ratio of the pulse of air leaving the driver shroud. Two of the frequencies had length to diameter ratios below the formation number, and two above. The formation number is the value of length to diameter ratio below which the pulse converts to a vortex ring only, and above which the pulse becomes a vortex ring plus a trailing jet. A modified version of the slug model of vortex ring formation was used to compare the observations with calculated values. Because the flow exit area is an annulus, vorticity is shed at both the inner and outer edge of the jet....

Reviews

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