

CHARACTERISTICS OF FLUID DYNAMICS IN TUBES AND THE OUTFLOW TRACT OF THE ARTIFICIAL HEART MEASURED WITH PULSED DOPPLER TECHNIQUES

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Velocity profiles in rigid tubes (\emptyset 20 mm) were measured at different flow velocities using pulsed Doppler technique (UDP 30). The intensity of turbulence was characterized by the RMS-value of the output voltage. The profiles were compared with results of hot-film anemometer-measurements. The problems linked with measurements of velocity gradient near the wall were discussed.

Velocity profiles measured with UDP 30 in a tube of rectangular cross-section were compared with results of cinema pictures.

The flow characteristics in the outflow tract of the artificial heart, developed in the W.-Pieck-University Rostock GDR, were measured using UDP 30-equipment. The output voltages at different distances from the heart valve of Bjork-Shiley type were averaged using Linc-8-computer to calculate RMS-values. Preliminary results of an estimation of stream characteristics inside the ventricle, studied cinematographically and by means of a combined B-mode-pulsed Doppler system, were given.