

Abstract Submitted
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Volumetric velocity measurements on flows through heart valves DANIEL TROOLIN¹, TSI Incorporated, DEVESH AMATYA², ELLEN LONGMIRE³, University of Minnesota — Volumetric velocity fields inside two types of artificial heart valves were obtained experimentally through the use of volumetric 3-component velocimetry (V3V). Index matching was used to mitigate the effects of optical distortions due to interfaces between the fluid and curved walls. The steady flow downstream of a mechanical valve was measured and the results matched well with previously obtained 2D PIV results, such as those of Shipkowitz et al. (2002). Measurements upstream and downstream of a deformable silicone valve in a pulsatile flow were obtained and reveal significant three-dimensional features of the flow. Plots and movies will be shown, and a detailed discussion of the flow and various experimental considerations will be included. Reference: Shipkowitz, T, Ambrus J, Kurk J, Wickramasinghe K (2002) Evaluation technique for bileaflet mechanical valves. *J. Heart Valve Disease*. 11(2) pp. 275-282.

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