URN etd-0407109-183708-622
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Statistics This thesis had been viewed 53 times. Download 0 times.
Department
Year 2003
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Numerical Study for Flow in Phoenix Left Ventricular Assist Device
Date of Defense 0000-00-00
Page Count 59
Keyword
No Any Keyword Information.

Abstract
Recently, the development of Phoenix-7 total artificial heart (TAH) is divided into two forms. One is the artificial heart of the electro-hydraulic TAH system including micro-pump, switching valve chamber, hydraulic chamber, blood chamber, reservoir, inlet/outlet conduit, internal channel, and DC and servo-motor .The other is the pneumatic TAH system including pneumatic pump, diaphragm, bladder, inflow/outflow conduit, and inflow/outflow artificial valve. The Phoenix left ventricular assist device is studied in order to obtain detailed information of its flow pattern. We apply the finite volume method with turbulent model to simulate the steady flow at peak systole. Results provide a comprehension of fluid dynamic effects not only the region inside the ventricle but also that in the vicinity of the inflow and outflow valves for flow field and control modeling of the future pneumatic diaphragm artificial heart.
Advisory Committee - advisor

Files No Any Full Text File.
Date of Submission 2004-02-12