

Benchmark dataset for validating computational fluid dynamic (CFD) simulation of blood flow through FDA Nozzle and FDA blood pump

Welcome to the FDA's Computational Fluid Dynamics (CFD)/Blood Damage Project.

Data on CFD and blood damage validation studies sponsored by the U.S. Food & Drug Administration, and funded by the FDA's Critical Path Initiative is available here.

Benchmark 1:

Computational Round Robin #1 was an international effort to assess the state of the art in biomedical computational fluid dynamics. We devised a benchmark standard model of a generic medical device, consisting of a nozzle with a conical change in diameter at one end of the throat, and a sudden change at the other end. We asked the CFD community in 2008-2009 to run a set of simulations under given flow conditions. We also performed experimental validations of flow in the nozzle for comparison. This website provides information on the study, the nozzle specifications, geometry details, fluid properties, flow conditions, and validation data from experiments, as well as reports as they are generated. .

[Click here](#) for data from **Benchmark 1**



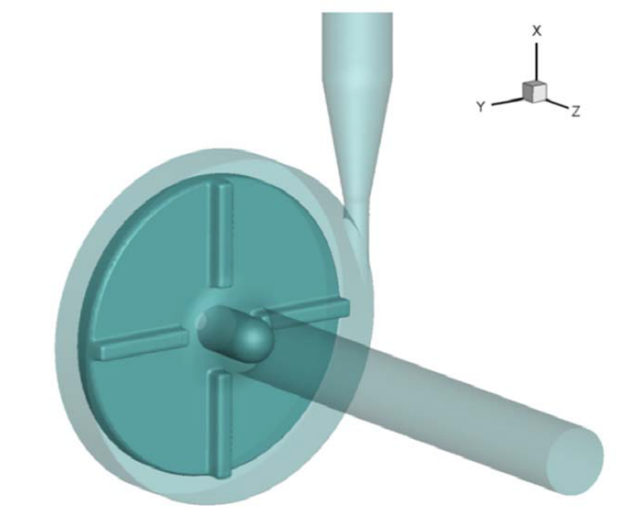
Benchmark 1: Nozzle

Benchmark 2

The second benchmark model was a centrifugal blood pump designed to have simple geometrical features and to operate over a wide range of flow and pressure conditions. This website provides information on the study, the pump specifications, geometry details, fluid

properties, flow conditions, and validation data from experiments, as well as reports as they are generated. .

[Click here](#) for data from **Benchmark 2**



Benchmark 2: Blood Pump

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