



SES MEDICAL DEVICE TECHNOLOGIES

A DIVISION OF STRESS ENGINEERING SERVICES, INC.

www.sesmedical.com



Medical Fluid Flow & Thermal Systems...

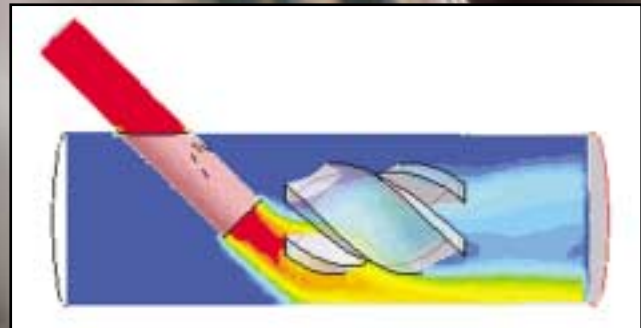
- Cardiovascular devices
- Drug delivery systems
- Blood pumps
- Infusion pumps
- Catheters
- Respiratory assist devices
- Diagnostic devices
- Anesthesia delivery systems
- Implants
- Inhalers

SES can help you reduce costs and get devices to market faster.

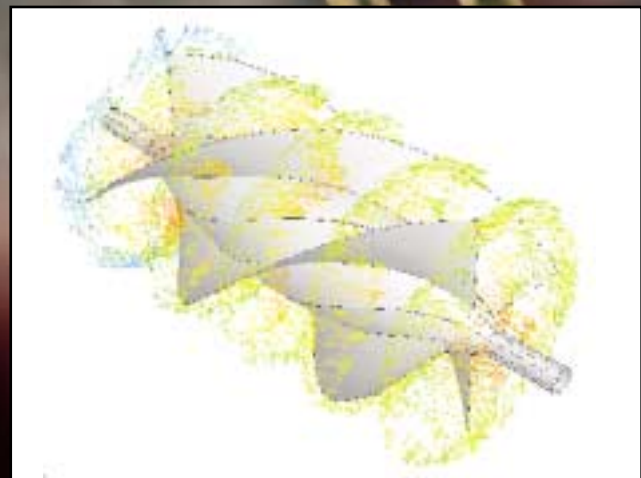
We offer a full range of engineering analysis, design and testing services. Our aim is to solve complex fluid flow thermal, and coupled physics problems faced by companies that design and manufacture medical devices. SES uses a multi-disciplinary approach that involves applying classical engineering methods, advanced technologies and custom testing.

SES can help you:

- Evaluate designs to find the most promising concept
- Develop an “inside look” to optimize device performance
- Troubleshoot device and system failures
- Accelerate development cycles by reducing design iterations



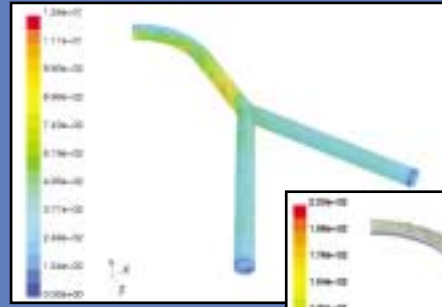
CFD simulation of drug infusion and mixing



CFD simulation of axial flow drug delivery pump

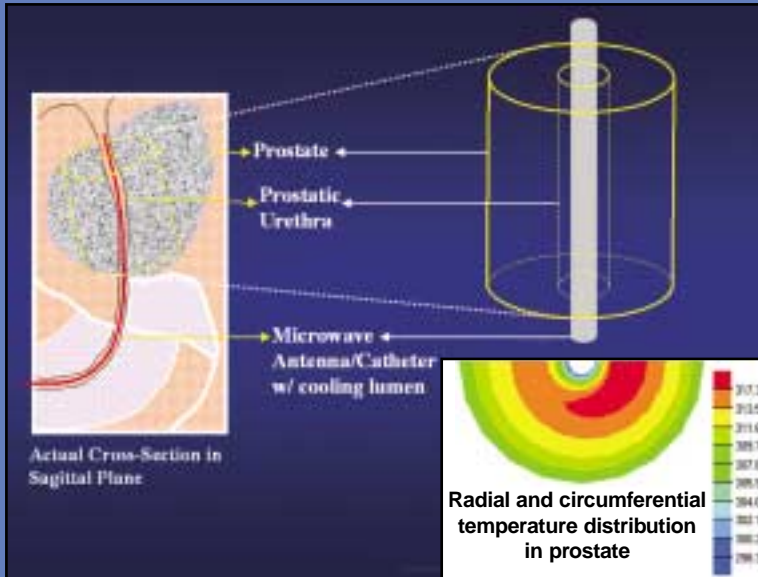
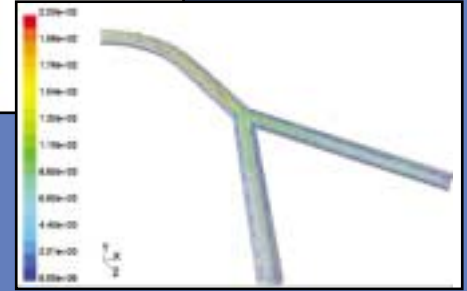
State of the art predictive engineering technologies, such as CFD make it possible to evaluate and improve performance before fabrication.

The result... device efficiency and performance is improved, time to market is shortened and development costs are reduced. In vascular devices such as a cannula, flow computations can identify design changes to minimize wall shear stress, hemolysis and pressure loss...before investing in prototypes and expensive pre-clinical trials.



Cannula shear stress distribution

Cannula blood flow velocity distribution



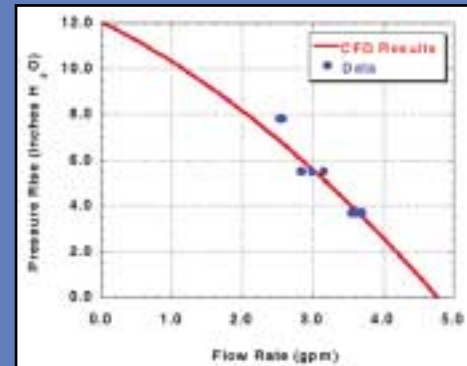
Actual and geometric idealization of prostate gland control volume in MicroWavSim

Custom analysis tools and innovative classical engineering methods are also specialties. For example, SES has developed MicroWavSim[®], a specialized PC-based heat transfer program that analyzes designs of microwave devices for the treatment of symptomatic benign prostate hyperplasia (BPH). This program couples analytical heat generation source terms from microwave radiation with blood perfusion effects. With MicroWavSim[®] it is possible to accurately predict the temporal and spatial distribution of temperature for different combinations of antenna designs and surgical deployment parameters.

SES offers a fully equipped test lab where we routinely develop custom test systems for medical devices, which are often integrated for control and data acquisition and analysis.



Regenerative turbine pump



Pump test results

SES Can Help You Meet Medical Device Development Challenges Without Expanding Your Staff. Call us today.

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