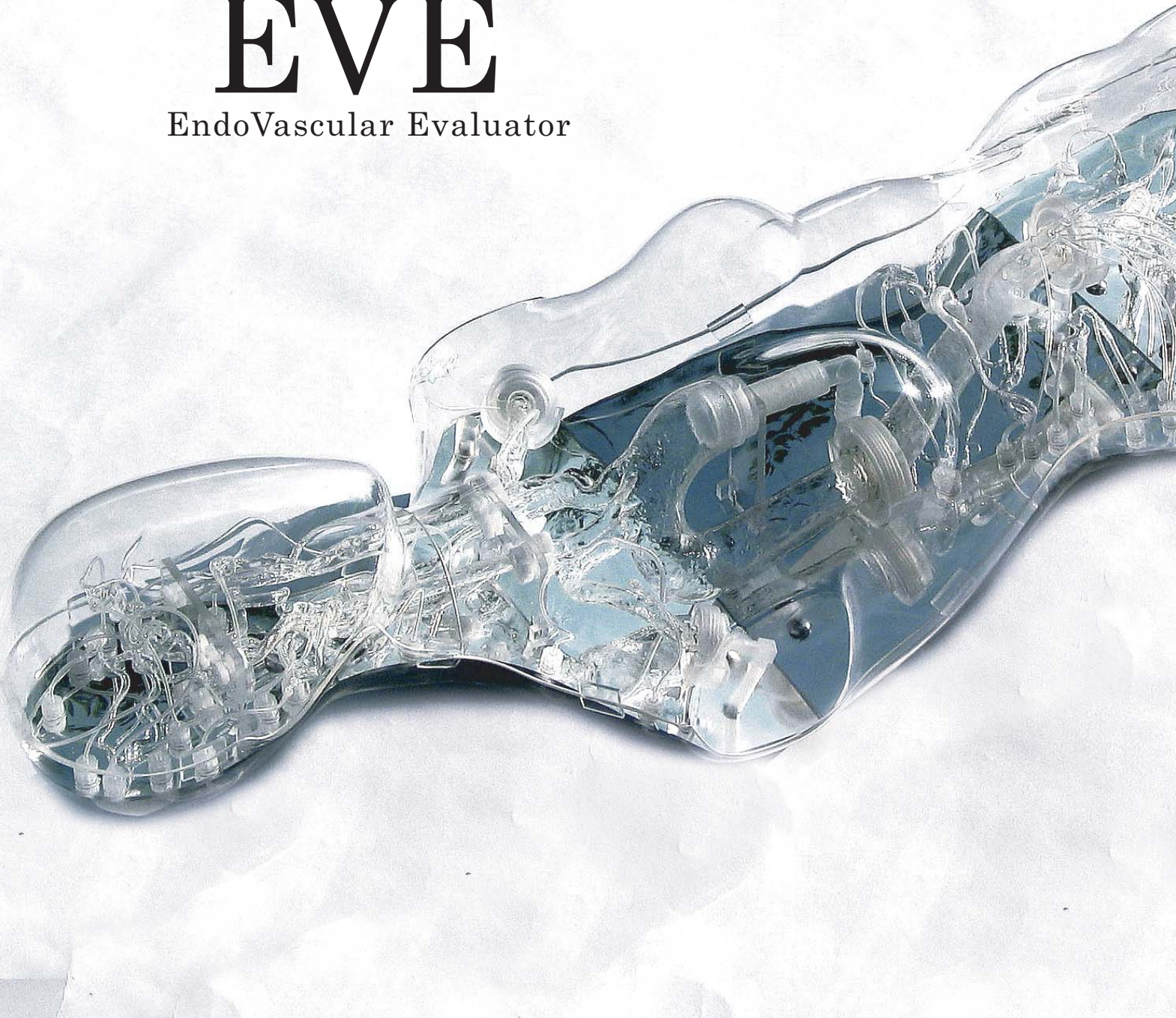


Surgical Simulator from FAIN-Biomedical

Endovascular Surgery
Training-Evaluation-Simulation

EVE

EndoVascular Evaluator



FAIN-Biomedical, Inc.
Challenging the Frontier
of Surgical Simulation

EVE

EndoVascular Evaluator

Simulating Vascular Diseases Treatment

The result of 20 years of joint research between engineers and physicians, the Endovascular Evaluator is a tailor made model of human vascular lumen, created with a patented modeling technology using CT/MRI Data. High precision models of the principal vascular structures (Cerebral-Coronary-Hepatic-Renal) were integrated to create EVE. EVE provides a realistic IVR environment simulation experience that will satisfy your necessities for medical training, medical tools evaluation, and surgery rehearsal.

Medical Treatments supported by EVE

- Cerebral Artery Embolism with coil or balloon.
- Percutaneous Transluminal Angioplasty (PTA) with a balloon or stents.
- Percutaneous Transluminal Coronary Angioplasty (PTCA)
- Carotid Artery Stenting (CAS)
- Transcatheter Hepatic Artery Embolization (THAE)
- Percutaneous Transluminal Recanalization (PTR)
- Catheter and Guide Wire Insertion
- Aortic Stents Grafts



Simulation of a cerebral artery embolism treatment with a coil



All modules of EVE may be exchanged and customized to simulate a diverse range of vascular diseases.



The reverse side of the arteries can be observed using the mirror plate.

Comprehensive Endovascular Surgery Simulation The Next Generation in Medical Training

Images: Anjo Kosei Hospital

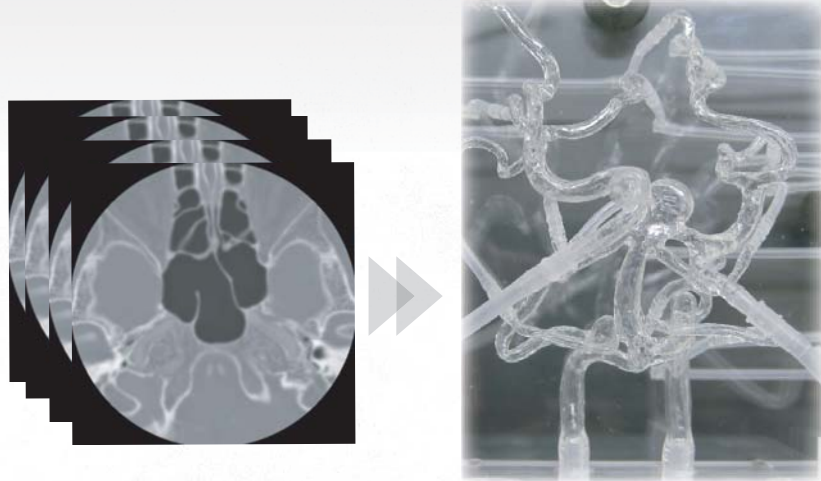


 **Good
Design**
50th GOOD DESIGN AWARD 2006
Special Universal
Design Award


Robot Awards
Ministry of Economy and Industry of Japan
Prize of Excellence 2008

Simulation Features

1. Tailor-Made Medical Simulation



The endovascular surgery simulator EVE precisely reconstructs human vascular lumen registered with CT or MRI equipment, enabling surgical training, surgery rehearsal, and simulation of real diseases.

Based on this medical imaging technology we are able to reproduce vascular lumen and disease with high precision using our patented technology. The vascular structure of EVE is composed of 16 ready made modules; each module can be exchanged with Order-Made modules customized to your simulation requirements.

4. Circulatory System with Pressure, Flow and Temperature Simulation



Digital Mannometer (Units: mmHg)

The circulatory system may be adjusted with the fluid control unit to set the simulation parameters, such as temperature, pressure and flow (Example: 40 °C, 100 mmHg, 5 lpm). Artery pulsation may be simulated using a pulsed flow pump. Blood leakage is simulated if the surgical ports are left open; the fluid will swirl inside the models as blood does in human vasculature, giving the sensation of a real surgery.

* The standard fluid control unit can set a stationary flow and temperature in limited ranges. Please contact us for other feature information.

3. Light weight for easy transportation (Dry Weight 3.8 Kg)*



The simulator body is light weight, enabling easy transportation between practice rooms inside a hospital, ideal for Hands-On seminars, exhibitions and much more.

*Simulator body only, weight of the pump and other accessories is not included

2. Realistic Simulation of vasculature physical characteristics



Our models are made of a special silicone that recreates the elasticity and friction of human vasculature, simulating the sensation and behavior of catheter manipulation during an endovascular surgery.

The elasticity coefficient of arteries varies from 1 to 3 MPa, the silicone models are manufactured at 2MPa. Poisson Ratio is reproduced with a maximum error of 5%.

The friction coefficient of arteries is of 0.038. The friction is set inside the simulator to 0.042. This parameter may be adjusted by the user changing the concentration of the surfactant circulating inside the simulator.

5. X-ray Compatible for Enhanced Simulation Quality



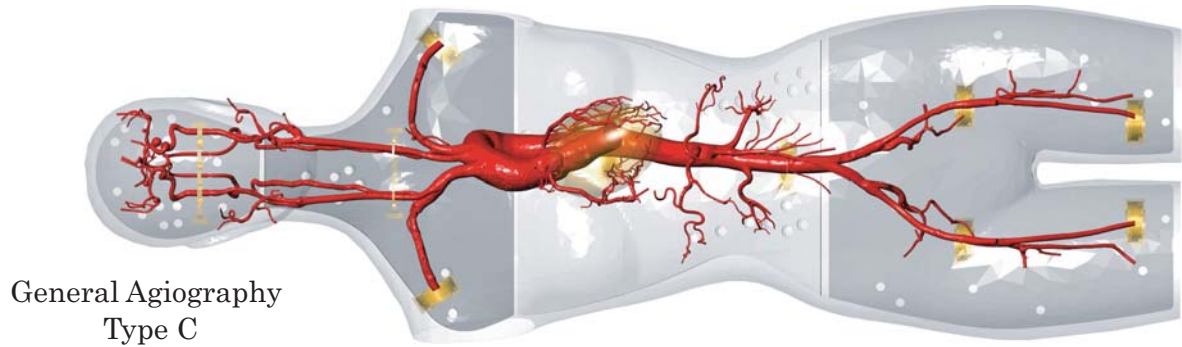
Radiography of the Simulator

Simulation quality may be enhanced by using EVE inside a Fluoroscope, providing compatibility with a wide range of X-Ray imaging techniques. The silicone models of EVE are captured with a high level of detail allowing for practice navigation and catheter manipulation.

* Be aware of X-Ray exposure during simulation as in a real surgery

EVE Ready-Made Models

The body of EVE is composed of 16 modules, each one representing a segment of vasculature. All modules are connected using special connectors designed to not interfere with your simulation. This characteristic enables the easy exchange of modules and the assembly of different Ready-Made Models of EVE to fit your simulation requirements. This also enables the simulation a range of diseases in specific segments of vasculature. Each module can be created from CT/MRI data or illustrations depending on you precision requirements. Order-Made models are also available.



Cerebral
Type S



Coronary
Type S



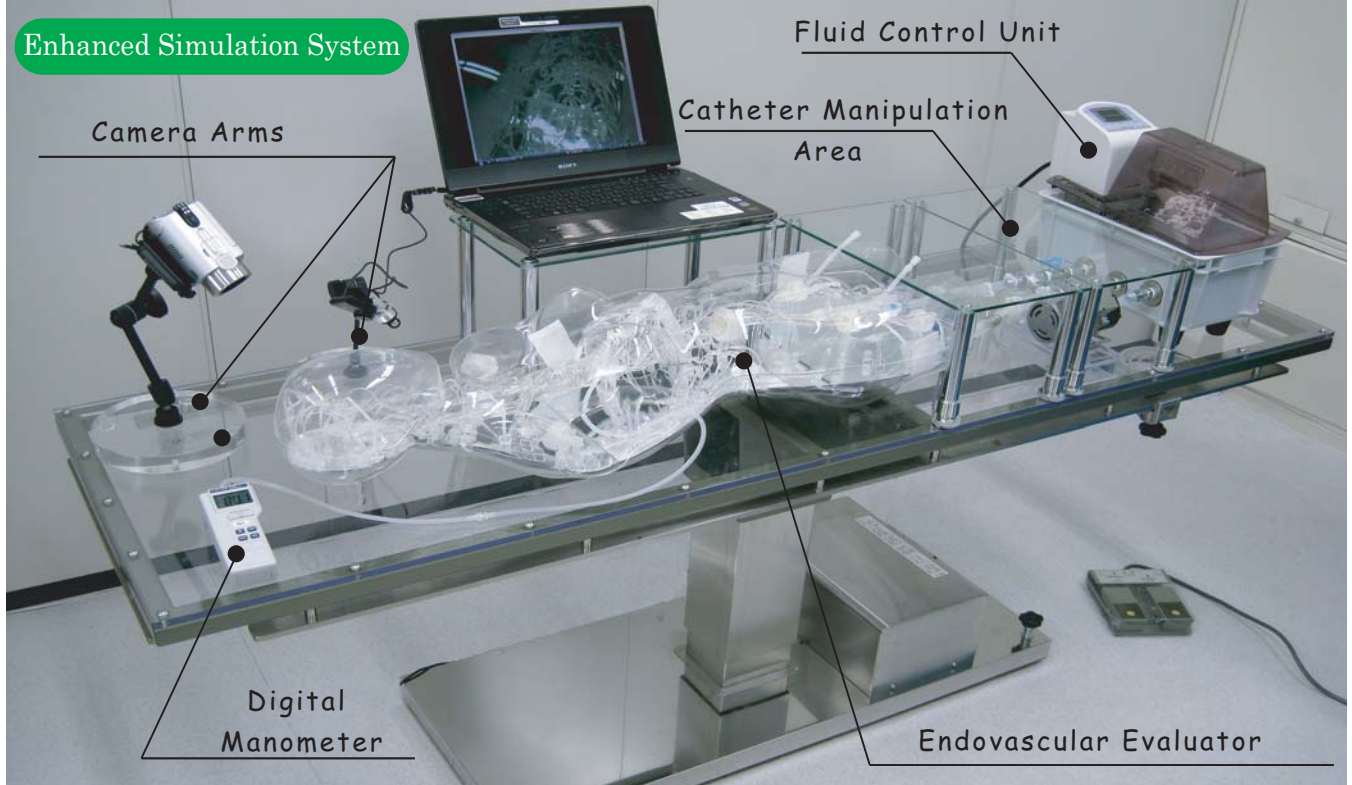
Abdominal
Type S

Ready-Made Models Integration Examples

● High Precision Model (Type C) ○ Simplified Model (Type S)

Module EVE Model	Cerebral	Carotid	Coronary	Thorax	Abdominal	Iliac	Aorta
General Angiography Type C	●	●	●	●	●	●	●
Cerebral Type C	●	●		●	●	●	●
Cerebral Type S	●	●		●	○	○	○
Coronary Type C			●	●	●	●	●
Coronary Type S			●	●	○	○	○
Abdominal Type C				●	●	●	●
Abdominal Type S				●	●	○	○

Enhanced Simulation System



Basic Accessories



Special Casing for
Easy Transportation



Digital
Manometer



Maintenance
Kit



Surfactant

Enhanced Simulation Accessories

A product line-up to improve your simulation experience...



Fluid Control
Unit

Reduces the time required for setup and cleaning while reducing the risk of leakage. Enables fluid temperature control.



Catheter Manipulation
Area

Provides a working area during the simulation for easy catheter manipulation and temporary storage.



Camera Arms

Take a closer look at your simulation by attaching a camera to one of our highly maneuverable arms. A standard version is available for high definition cameras and an Ultra Light version for Web Cams (Cameras Sold Separately).



Ultra Light

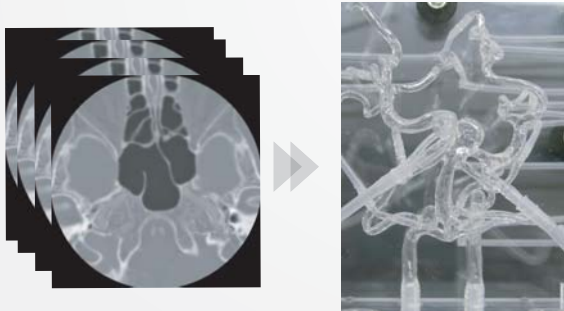
Standard

Order-Made Models of Vasculature

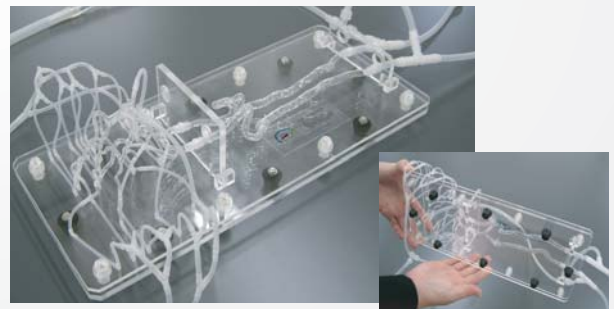
We provide customized modules for you, based on your DICOM data of a case study disease, an illustration or sketch. The complexity of the tailor-made module increases with the precision of the data provided. Independent modules may be manufactured on request, feel free to contact us to design a module that meets your simulation requirements for Technical Training, Medical Equipment and Techniques Evaluation and Surgery Rehearsal.

Note:

- Delivery time and price Order Made products will vary depending on their complexity.
- Some CT/MRI data may not be useful for accurate modeling or may exceed our modeling capabilities.
- We cannot guarantee to exact reproduction of the vasculature of a patient as some sections of vasculature may appear unclear on CT/MRI data



Clear silicone elastomer models reconstructed from CT/MRI data



Order Made models may be used separately combined with a stationary pump (Sold Separately).

Specification Table

Aproximate Size	1200mm X 600mm X 250mm ⁽¹⁾
Aproximate Weight	Dry: 3.8 Kg ⁽¹⁾ Filled with water: About 5Kg ⁽¹⁾
Power Consumption	EVE: 0 kVA Fluid Control Unit: 1.4kVA ⁽²⁾
Basic Accessories	Digital Manometer, Special Casing, 5x100ml of Surfactant
Maximum Flow	10 lpm
Maximum Pressure	160 mmHg ⁽³⁾
Required Area	1800x600mm+
Water Consuption	8 liters of purified water per simulation session ⁽⁴⁾

⁽¹⁾ EVE body without accesories ⁽²⁾Pump and Heater included ⁽³⁾May vary depending on operation conditions ⁽⁴⁾When Fluid Control Unit is used

Contact Us

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- The real products may differ from the pictures shown in this catalogue.