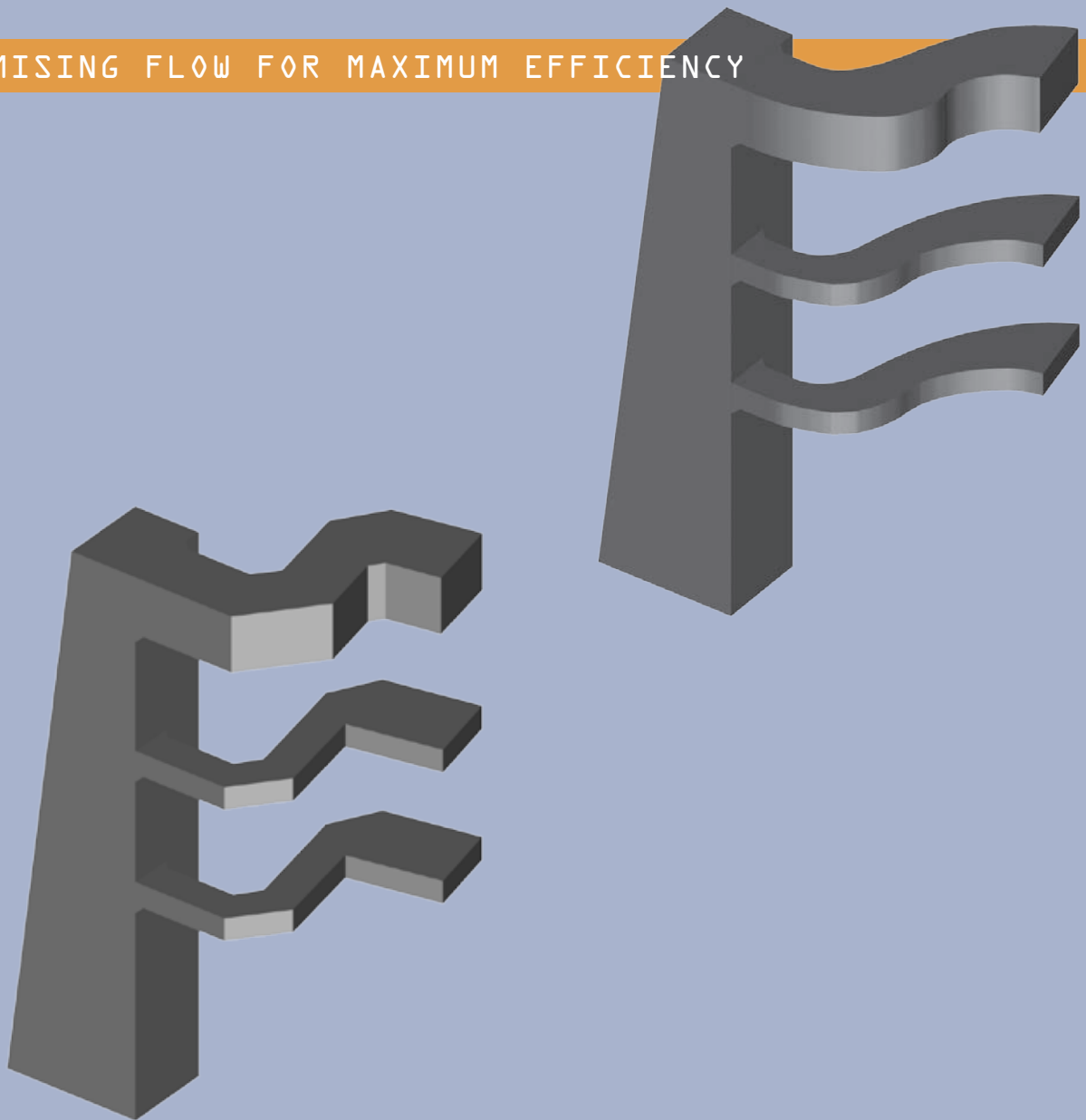
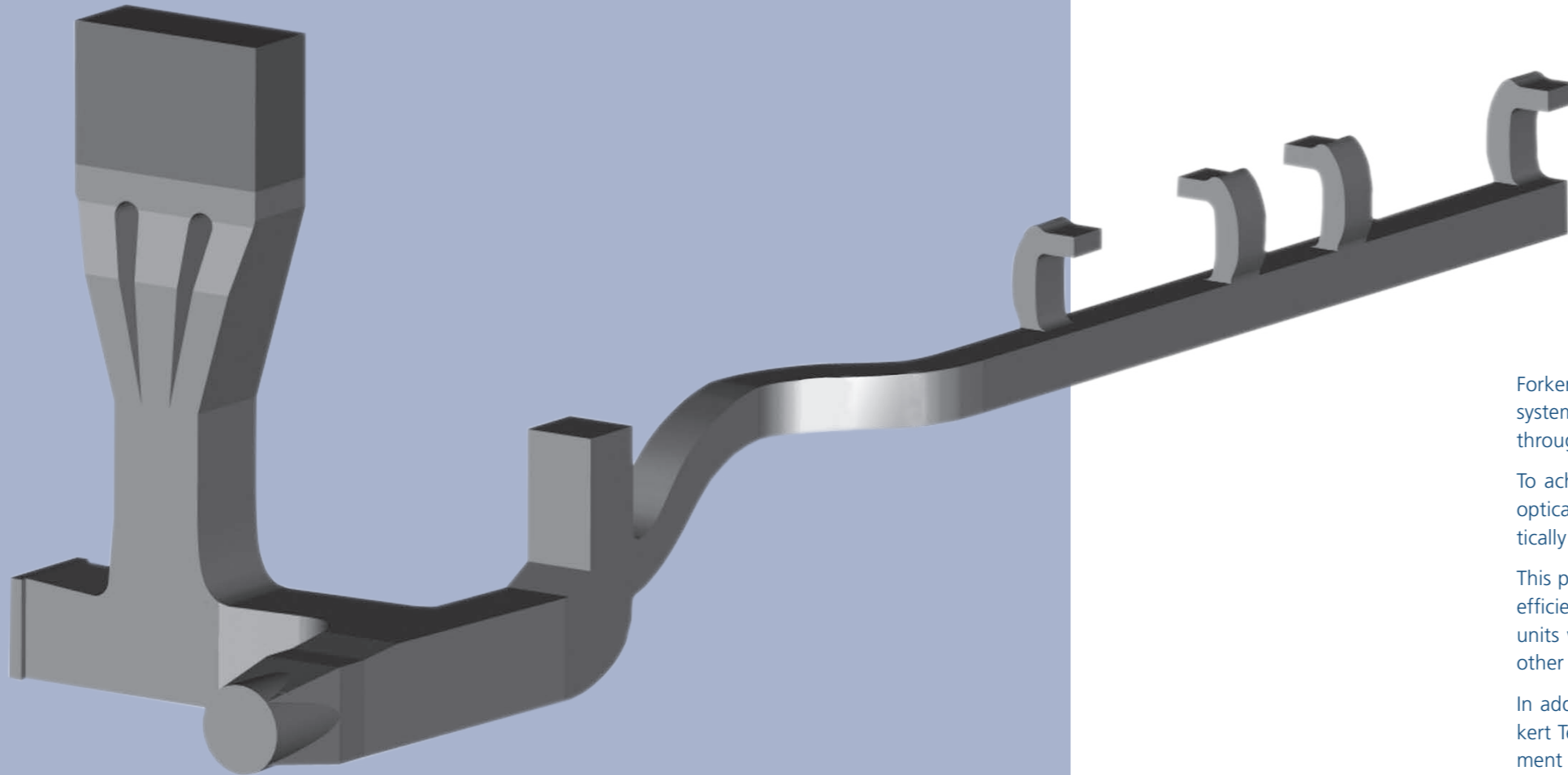


OPTIMISING FLOW FOR MAXIMUM EFFICIENCY



USING OPTICALLY ACTIVE FLUID TO VISUALISE AND OPTIMISE FLOW



Economic advantages

- Minimal pressure loss
- Decreased wear and tear
- Reduced vibration
- Less noise

Forkert Technology Services GmbH specialises in optimising flow in units and systems for transporting liquids and gases and in optimising bodies which move through a medium.

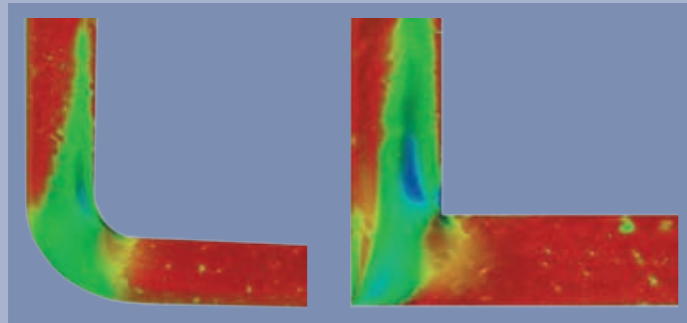
To achieve this, Forkert Technology Services GmbH makes use of a particular optical technology in which specially modulated light is passed through an optically active fluid.

This process can be used in the projection of flow channels to improve energy efficiency in industrial processes. The technology enables the development of units with hugely improved energy use properties and acoustic, vibration and other characteristics.

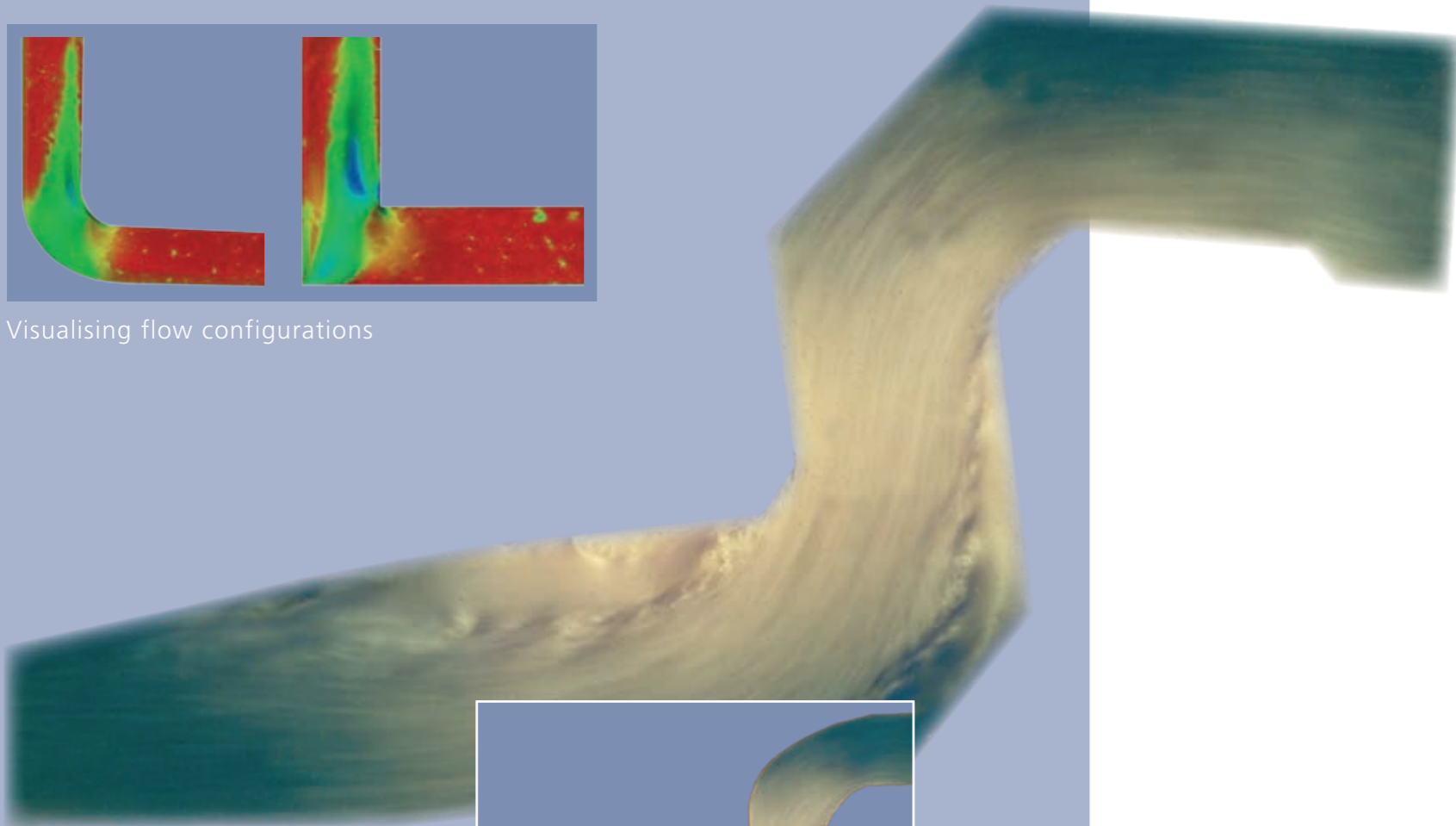
In addition to continuing improvements in the flow optimisation process, Forkert Technology Services GmbH also uses the process to work on the development of small and medium-capacity wind turbine generator systems and units which utilise river flows or tidal currents.

Forkert Technology Services GmbH also specialises in:

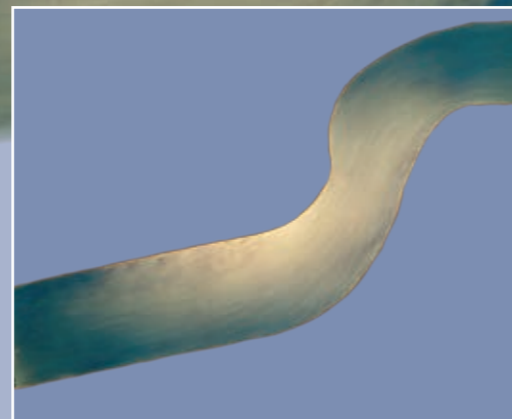
- Concept studies for biomass combined heat and power plants
- Thermodynamic cycle calculations
- Project management
- Supplying temporary staff



Visualising flow configurations



Identifying a flow configuration with minimum energy loss



Flow configuration in an optimised channel

Instead of computer simulations, Forkert Technology Services GmbH relies on optical technology for flow optimisation. This technology is based on a method of flow visualisation in which specially modulated light is passed through an optically active fluid.

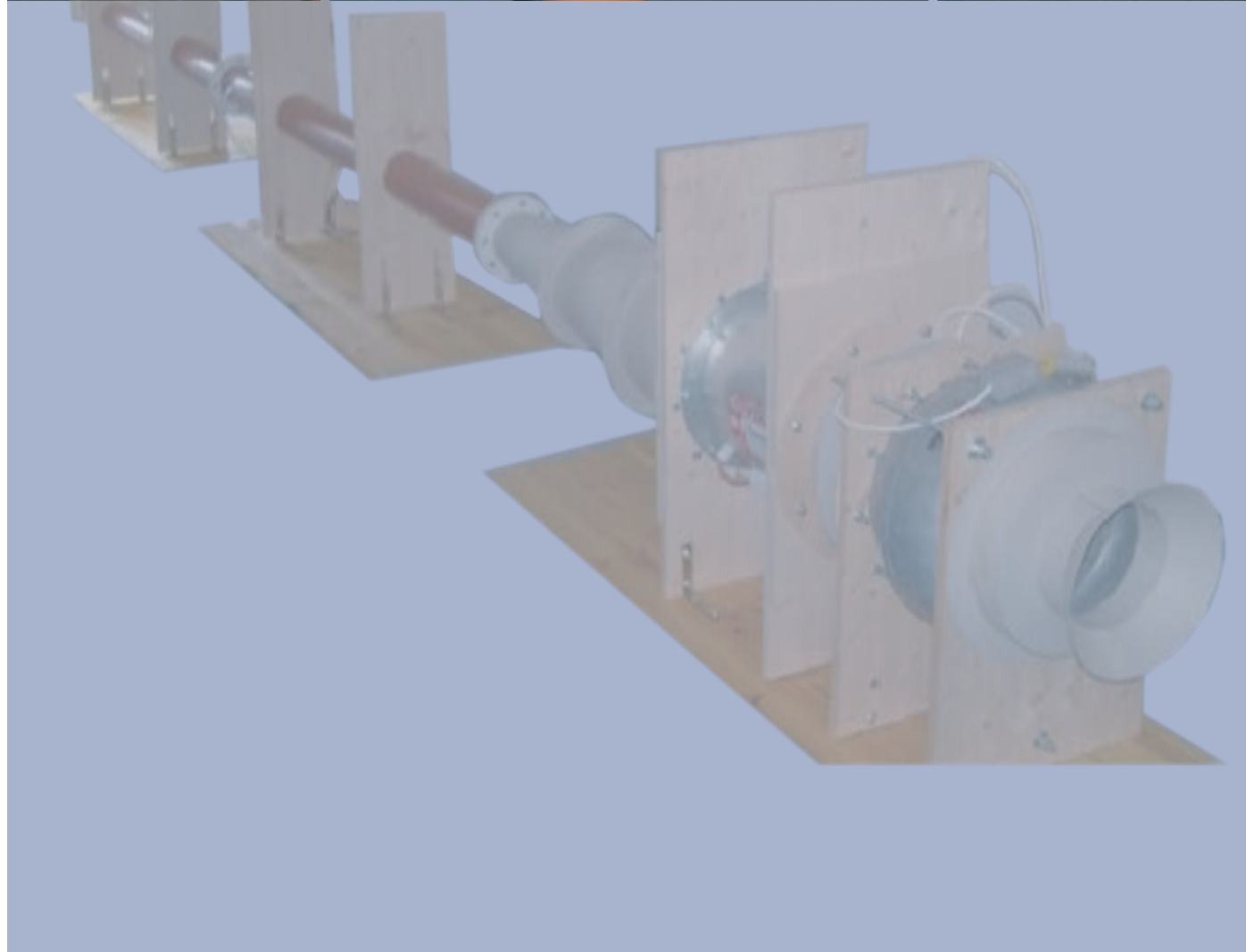
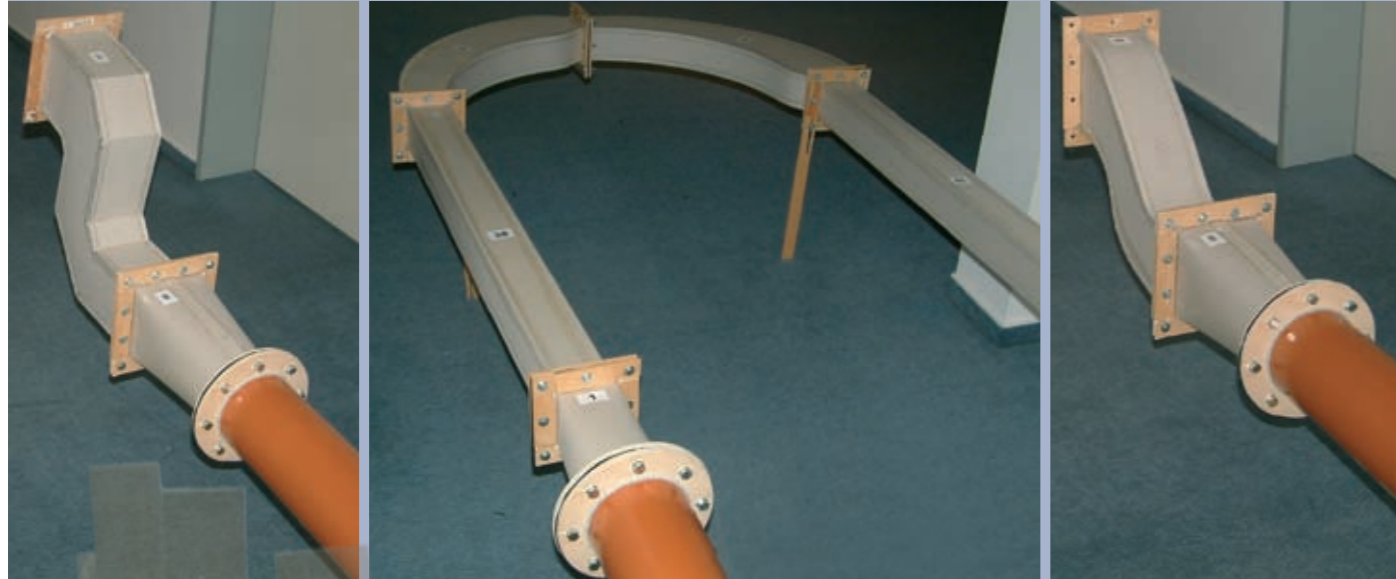
Using similarity laws and experimental equipment with optically active fluid realistically simulates flow configurations through or around the unique profiles of a fluidic object. This approach allows technicians to model the flow of both fluids and gases.

Passing specially modulated light through the optically active fluid as it moves through the flow channel produces a "field of irregularity of optical densities," which clearly correlates with the internal structure of the flow (flow configuration).

The main advantage of the process is that it allows one to see the lines along which the flow moves with a minimum loss of energy. This greatly reduces the size of inlet and outflow zones needed to align the flow.

After evaluating these findings, technicians can develop a spatial channel geometry that radically reduces flow resistance.

BUILDING AND TESTING ORIGINAL AND OPTIMISED MODELS



The original item and the optimised version are designed using a powerful CAD programme, which produces high-quality data for drawings in commonly used formats.

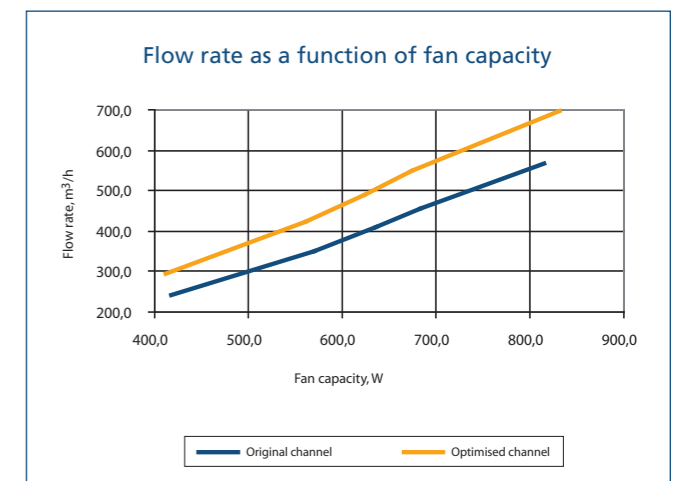
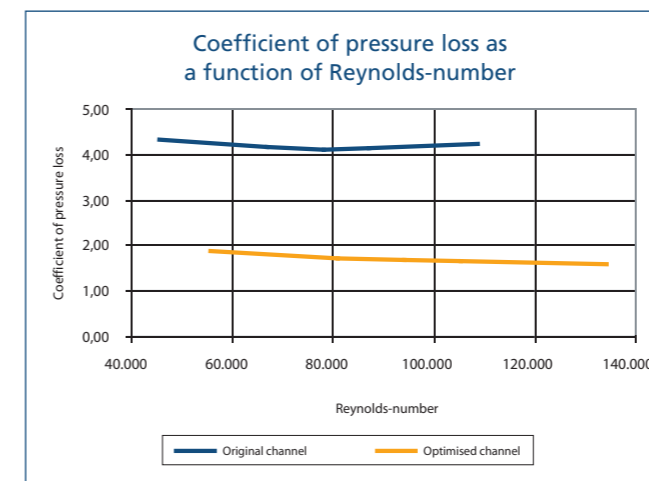
A cost-effective technology was developed for the production of accurate scale models of the original and optimised versions. This helps clients estimate the effectiveness of optimising the unit or object.

The models are tested using fluidic test stands or wind tunnels.

This enables qualitative conclusions to be drawn on the following parameters after the optimisation has been implemented:

- Decreasing pressure loss
- Increasing flow rate
- Reducing energy requirements

The results for the original and the optimised versions are presented in graphic and tabular form for easy comparison.



CONTACT

www.forkert-t-s.com

forkert
technology
services

Forkert Technology Services GmbH_Managing Director: Dr. Jan Forkert_Allee der Kosmonauten 28_12681 Berlin
Tel.: +49 (0)30 548 00 450_Fax: +49 (0)30 548 01 706_Mobil: +49 (0)172 325 13 88_info@forkert-t-s.com