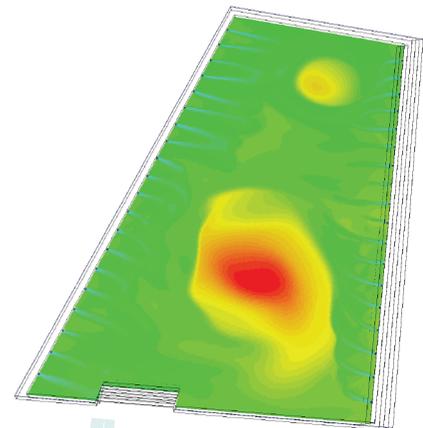
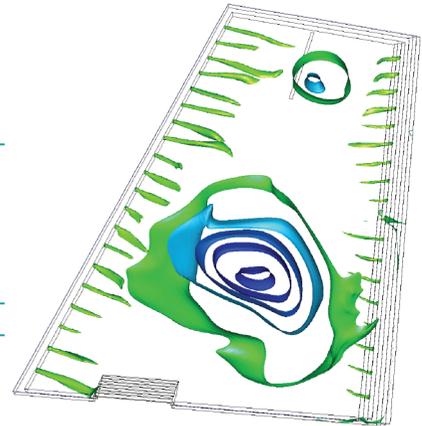


Pool technology

About us

CFD.HU Ltd. is a Computational Fluid Dynamics consultation company closely associated with the Department of Fluid Mechanics at the Budapest University of Technology and Economics and the distributor and support center of ANSYS simulation software in Hungary. With the support of market-leading ANSYS Fluid Dynamics, Mechanical and Multiphysics software and our own computer cluster the company's internationally acclaimed staff can precisely analyse complex fluid problems with large cell numbers in order to optimise future engineering designs.

The company is co-lead by the former Head of the Fluid Mechanics Department, professor Tamás Lajos and Gergely Kristóf, PhD., the chairman of the sub-committee of Fluid Mechanics and Heat Technology at the Hungarian Academy of Sciences (MTA). All colleagues have a rich academic background with years of experience in the field of Computational Fluid Dynamics. The company's close relationship with the University also provides the opportunity to perform wind tunnel investigations to validate CFD results and to involve experts of other disciplines.

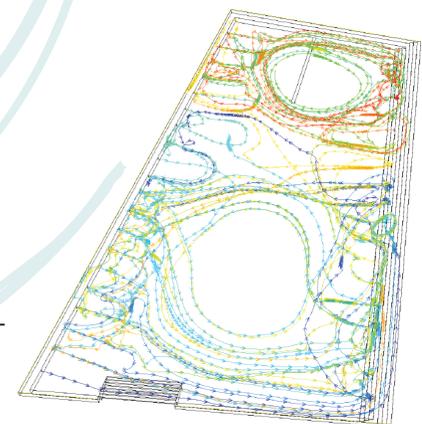


We use CFD, which makes it possible to:

- Analyse complex flow characteristics
- Investigate flow profiles
- Examine safety and environmental effects
- Optimise pool design and energy consumption
- Optimise chlorine introduction
- Improve water quality
- Reduce chlorine overestimation
- Avoid use of water dye

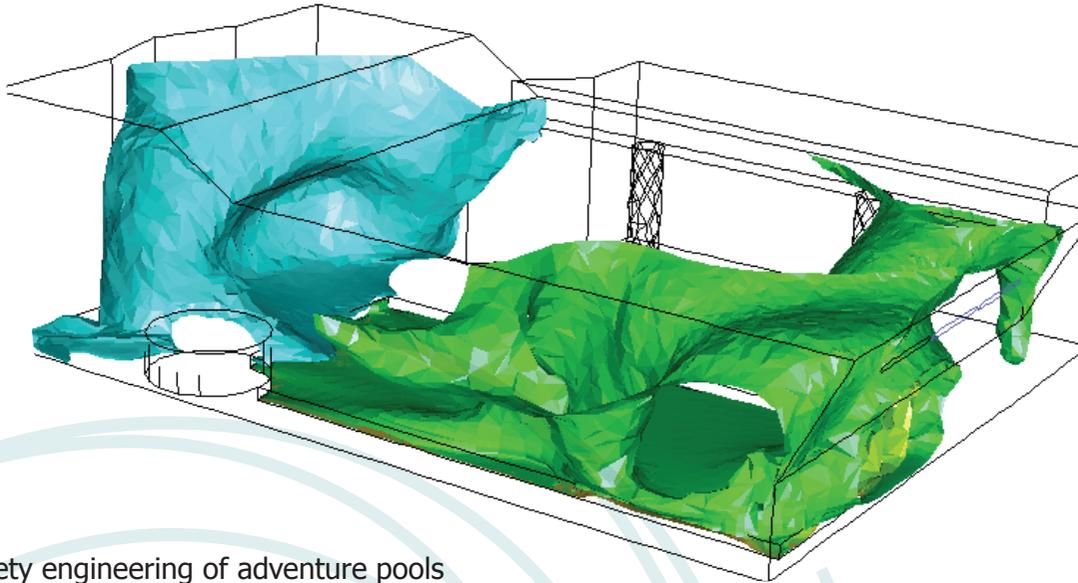
Definition of chlorine distribution in swimming pools

When designing or redesigning a swimming pool, the most important goal is to guarantee high water quality. The proper chlorine concentration is an important hygienic and comfort factor. Numerical simulations can be used to investigate the flow field of a pool to discover unfavourable dead spaces. The retention time and chlorine distribution within a pool can then be used to optimise the configuration of the jets and drains and reduce the consumption of chemicals.



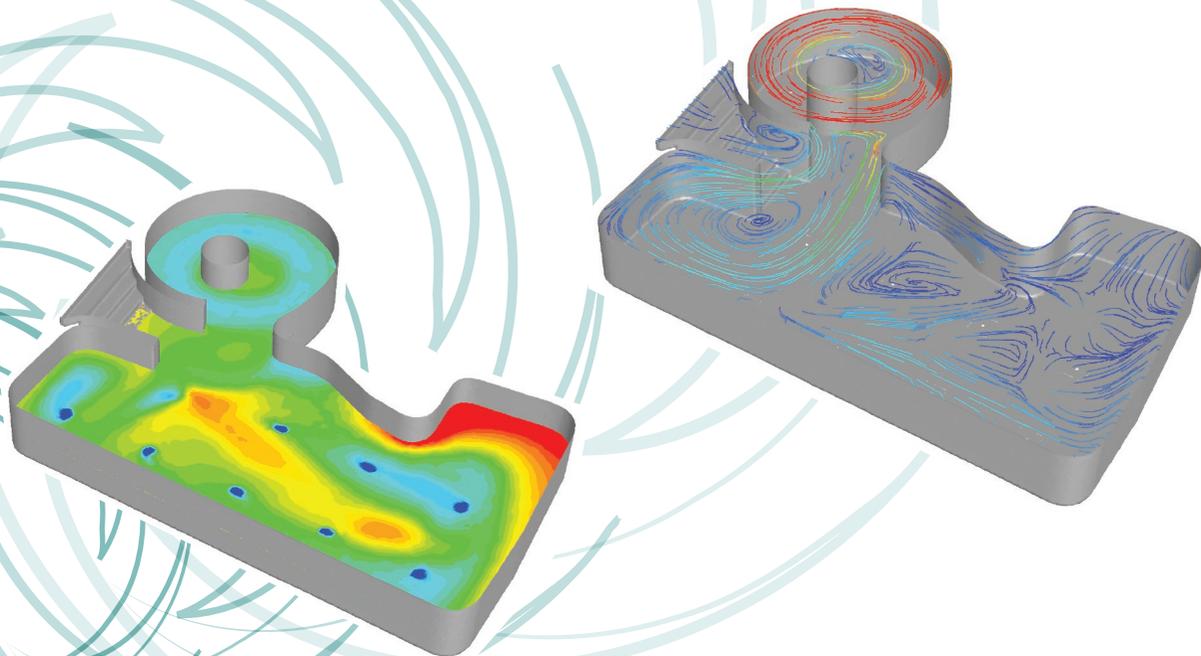
Air humidity control

In spaces of high humidity, such as indoor pools, it is generally a goal to reduce condensation on walls. Humidity is mainly influenced by temperature distribution and air flow conditions, which can be effectively defined by numerical simulation. A detailed CFD investigation can be used to optimize the ventilation design and operation in order to reduce condensation.



Safety engineering of adventure pools

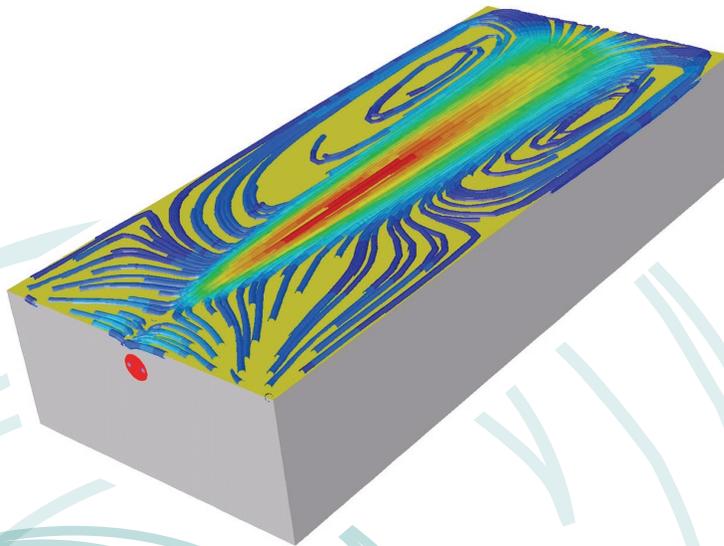
When designing adventure pools with elements like slides, whirlpools and other novelty units, it is important to keep safety in mind. With the help of CFD simulations, zones with excessive velocities and strong undercurrents can be located and eliminated from the design.



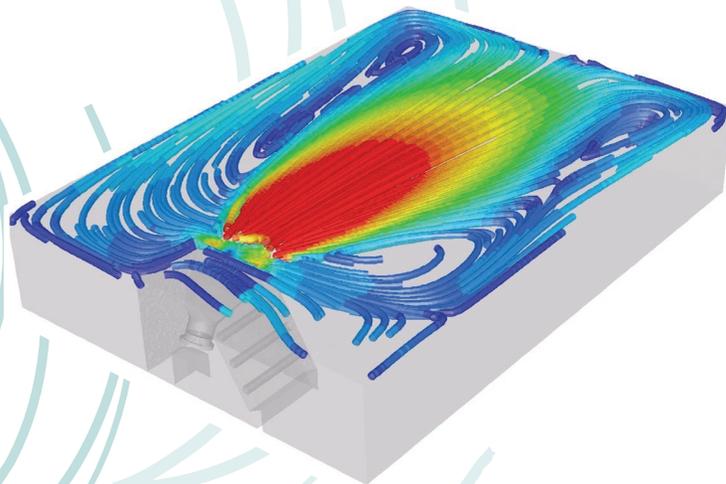
Water treadmills

In small or medium pools, it is often frustrating to swim laps, constantly having to turn around once reaching the end of the pool. Water treadmills can eliminate this annoyance by generating a wide and even flow zone near the surface of the water, allowing the swimmer to exercise on the spot. Similar to a land treadmill the water treadmill has various settings according to speed. With the help of numerical simulation the flow conditions can be adequately predicted and comfort can be optimized.

Our colleagues have developed a water treadmill which can generate a more uniform flow than typical commercial treadmills with significantly less energy consumption.



Flow induced by an ordinary water treadmill



More even flow induced by our revolutionary treadmill

Online swimming pool simulation

The flow field of a pool can be investigated by means of numerical simulation to discover the unfavourable dead spaces and determine the spatial distribution of relevant water quality. The purpose of such a project is to propose design or redesign recommendations for different jet, drain and skimmer configurations and to make it affordable even in household pools.

We offer pool simulation to:

- Examine flow characteristics
- Visualize vertical and horizontal vortices
- Investigate processes in filters
- Optimize ventilation and air-conditioning (dehumidifying, moisture control in pool environment, optimization of the ventilation system)
- Define wind load and wind comfort in the outdoor pool area

Visit us at www.cfd.hu to learn more about our references, or contact us at info@cfd.hu.

