

# World-Class Techniques for Membrane Module Design & Optimisation

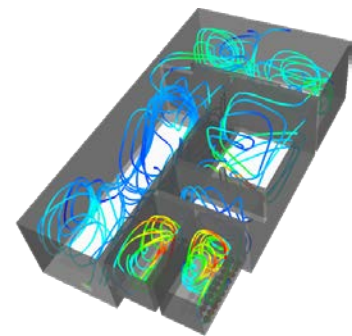
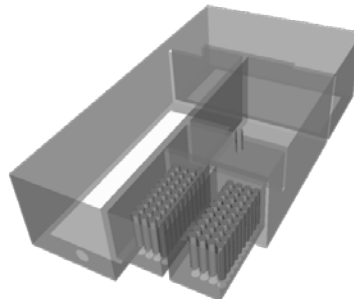


## What we do

Using the state-of-the-art technology, Computational Fluid Dynamics (CFD) together with advanced experimental characterisation techniques to optimise the design of membrane module and large scale water and wastewater treatment plants

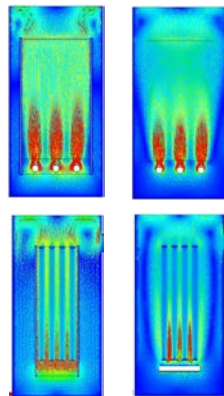
## Design of Membrane Bioreactors

### 1 Predict hydrodynamics and nutrient removal



### 2 Optimise flow patterns

Commercial hollow fibre membrane modules typically possess unique designs with regard to geometry and aeration systems. We use numeric and experimental methods to evaluate membrane surface shear



### 3 Mechanical analysis of fibre failure

Development of optimum module configuration including fibre length, looseness, maximum displacement angle, fibre diameter, resin hardness and potting method that allows for maximum fouling control (through air bubbling and/or chemical cleaning) without compromising mechanical integrity due to excess stress caused by both constant load and shock or impact load.

Predict time to failure from repetitive stress-based phenomena (bubbling and chemical cleaning)



## Membrane Distillation for Brine Management

Design of energy efficient membrane module and process for membrane distillation using CFD and Aspen coupled modelling techniques

