turbo designsuite
by Advanced Design Technology

Advanced Design Technology Ltd

Successful R&I in Europe 2018 - 9th European Networking Event
15-16 March Düsseldorf

Maria Vera-Morales, PhD
Research and Development Manager

Who we are

Advanced Design Technology (ADT)

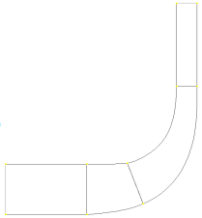
- We provide advanced turbomachinery design software and services
- We offer solutions covering the entire fluid-dynamic design process
  - From initial concept to final optimisation and design for manufacturing
- We develop and market **TURBOdesign Suite**
  - A design toolset applicable to all types of turbomachinery components
- All based on our unique 3D Inverse Design Technology

TURBOdesign Suite comprises a large range of capabilities:

- 1D sizing tools and performance models
- 3D inviscid/viscous, incompr./compressible inverse design codes
- Highly-efficient 3D multi-objective/multi-point optimization
- Tools integrating TURBOdesign into common CAE environments

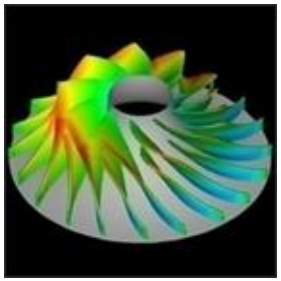
What we do

PR, Flowrate, RPM

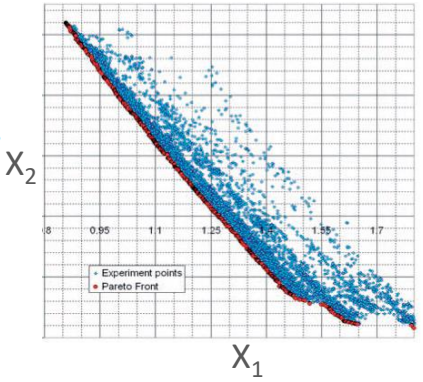


Meridional geometry

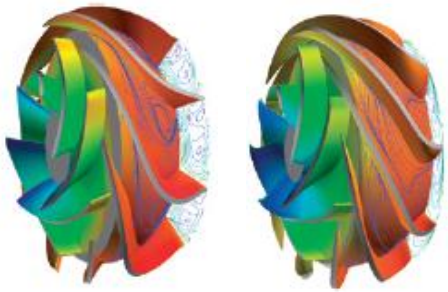
Prescribe Blade Loading and Thickness



DoE, MOGA, RSM, …

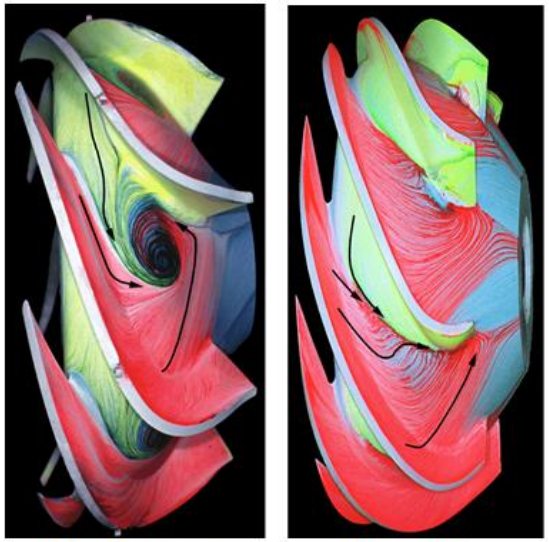


Pump diffuser



Conventional design

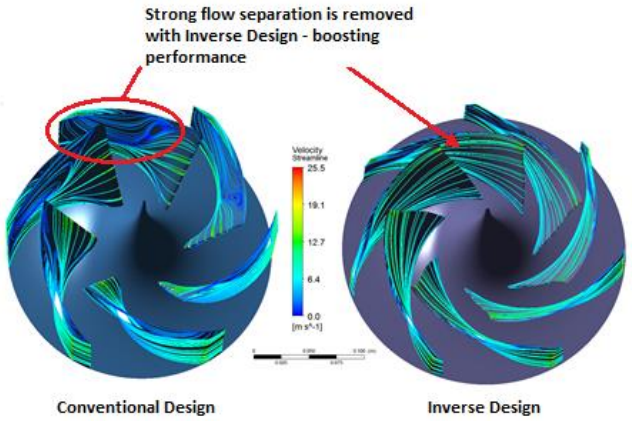
TURBOdesign Suite



Conventional Design

Inverse Design

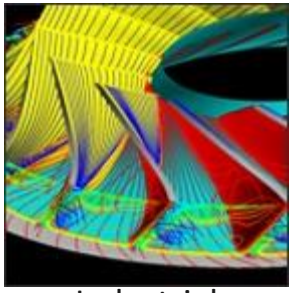
Experimental Validation of Improved Performance

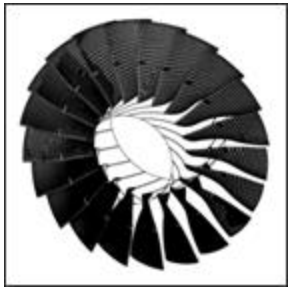


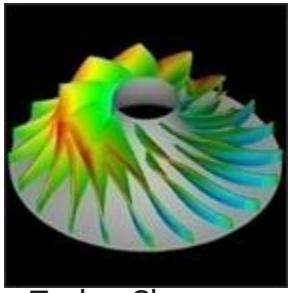
Centrifugal Impeller

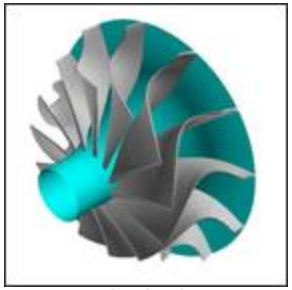
What we do

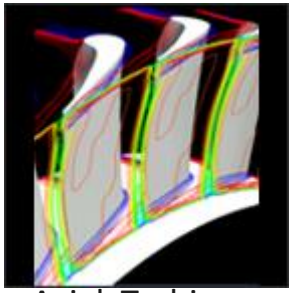
Advanced Design Technology

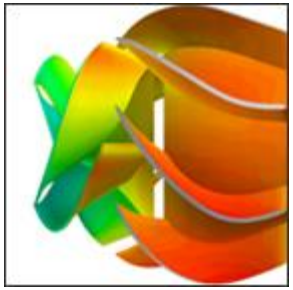

Industrial Compressors


Transonic Fans and Compressors

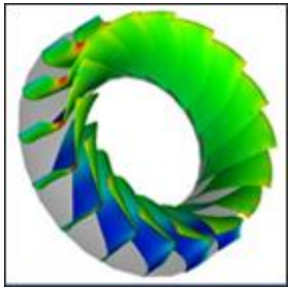

Turbo-Chargers


Radial Flow Turbines

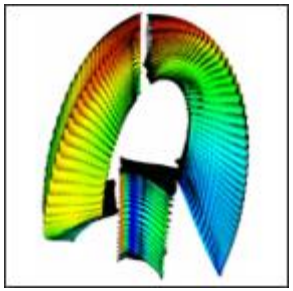

Axial Turbines

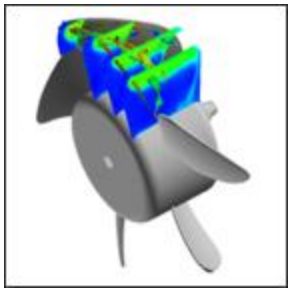

Pumps

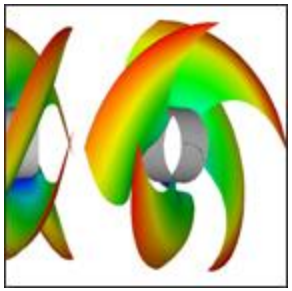

WaterJet Pumps

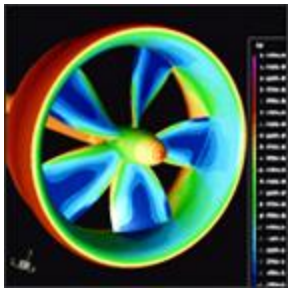

Hydraulic Turbines

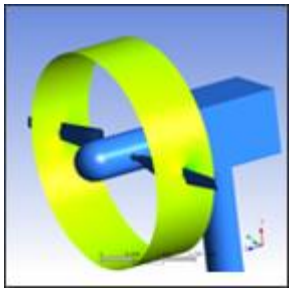

Rocket Pumps


Torque Converters


CPU Fans


Air Conditioning Fans


Ducted Propulsors

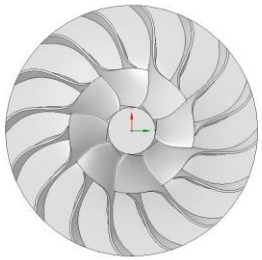

Wind Turbines

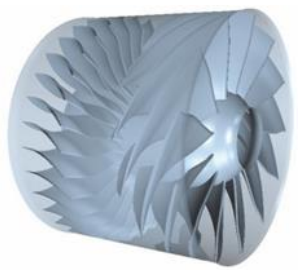
What we do

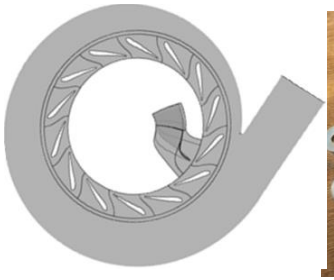
Advanced Design Technology

Strong R&D and Innovation drive

- Fluid-dynamic design of all types of turbomachinery components in aerospace, automotive, industrial, power generation and marine fields
- Aero-acoustics modelling and design capability as well as FEA and Aero-elastic analysis
- Participant in several Innovate UK research projects as lead partner and as consortium member
- Part of different industrial and academic consortiums looking into **fan noise** and **multi-objective/multi-point optimization** amongst other topics








What we are looking for

Advanced Design Technology

Partners in the energy and/or transport sectors for joint Horizon 2020 proposals and EU-funded research

ADT's R&I areas of interest: ***design of turbomachinery components***

- Multi-objective, Multi-point and Multi-disciplinary Optimization
- Noise Modelling, Validation and Noise Reduction
- Robust Design Optimization
- Design for Manufacturability
- 'Unconventional' Working Fluids Applications (ORC, sCO2, RF, …)
- Data Mining and Artificial Neural Networks for automated design
- Applications, operational envelopes and design spaces that take our codes out of the comfort zone