

FUEL CELL
HYDROGEN POWERED

PAC CAR II

a project partnered with:

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

and:



the race | shell eco marathon nogaro & ladoux 2005

How far can a car travel with an amount of **hydrogen** equivalent to **1 liter of gasoline**? We answered the question with the most efficient motor vehicle in the world: **5385 km!**

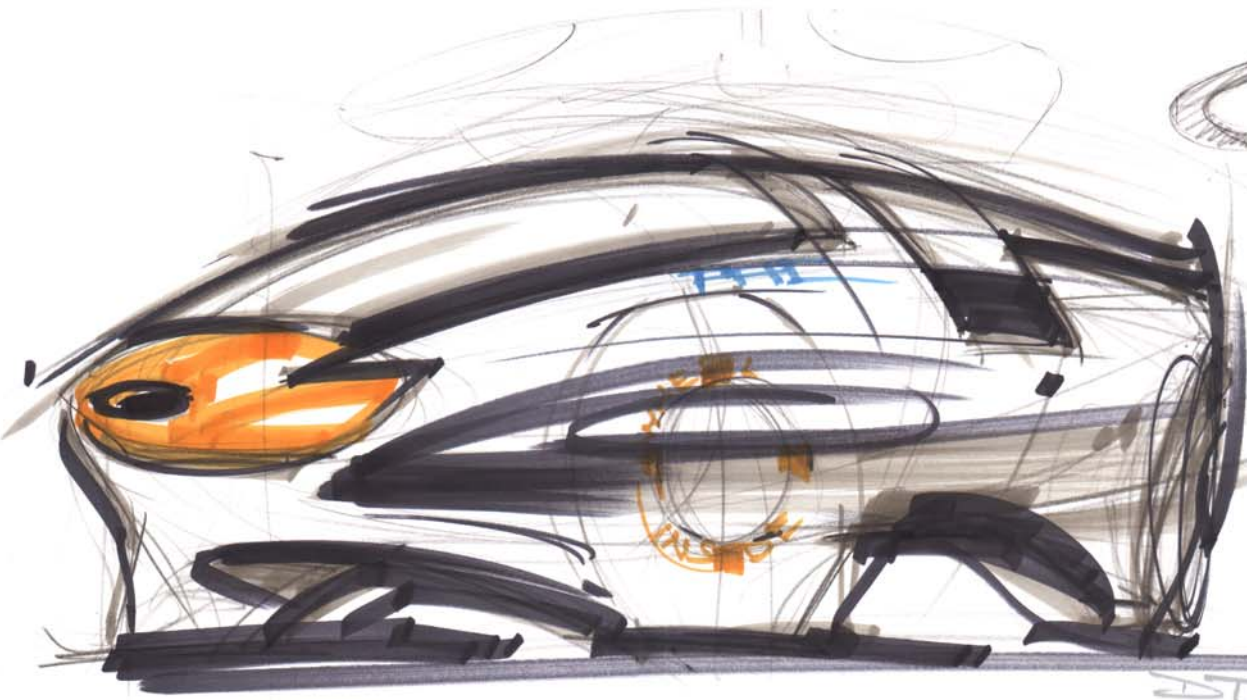
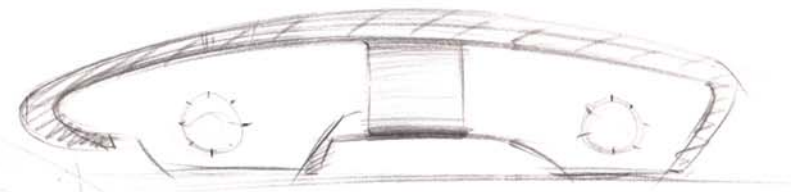
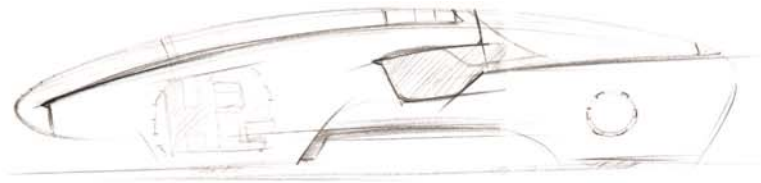
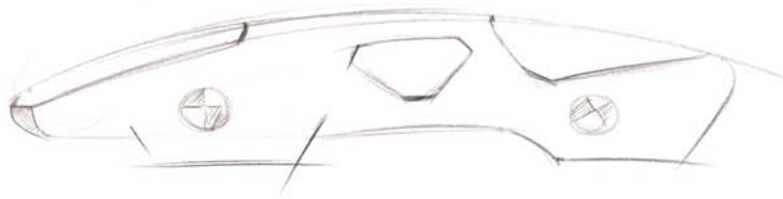
The PAC-car II was developed at the ETH Zurich and runs with a hydrogen-powered **fuel cell** (Pile A Combustible = PAC). Competing with more than 200 vehicles, the PAC-car II won the Shell Eco Marathon in Nogaro and Ladoux (France) and beat the world record with more than 1000 km margin.

As one of the project's industrial partners from the first, we were able to demonstrate our engineering expertise as well as our skills in developing concepts and design.

The project partners: The Federal Office for Energy (financial support), Esoro AG, ETH Zurich – Measurement and Control Laboratory (project lead), Paul Scherrer Institute, RUAG, Tribecraft AG, University of Valenciennes)



Bilder: www.paccar.ethz.ch



collaboration in the overall design concept of the vehicle

definition of the look/feel & character shape and cutlines

detailed focus on optically significant aerodynamic aspects such as wheelhousings or the rear-end

Shirts Male: MRIS 004
Shirts Female: GRITS 002-R



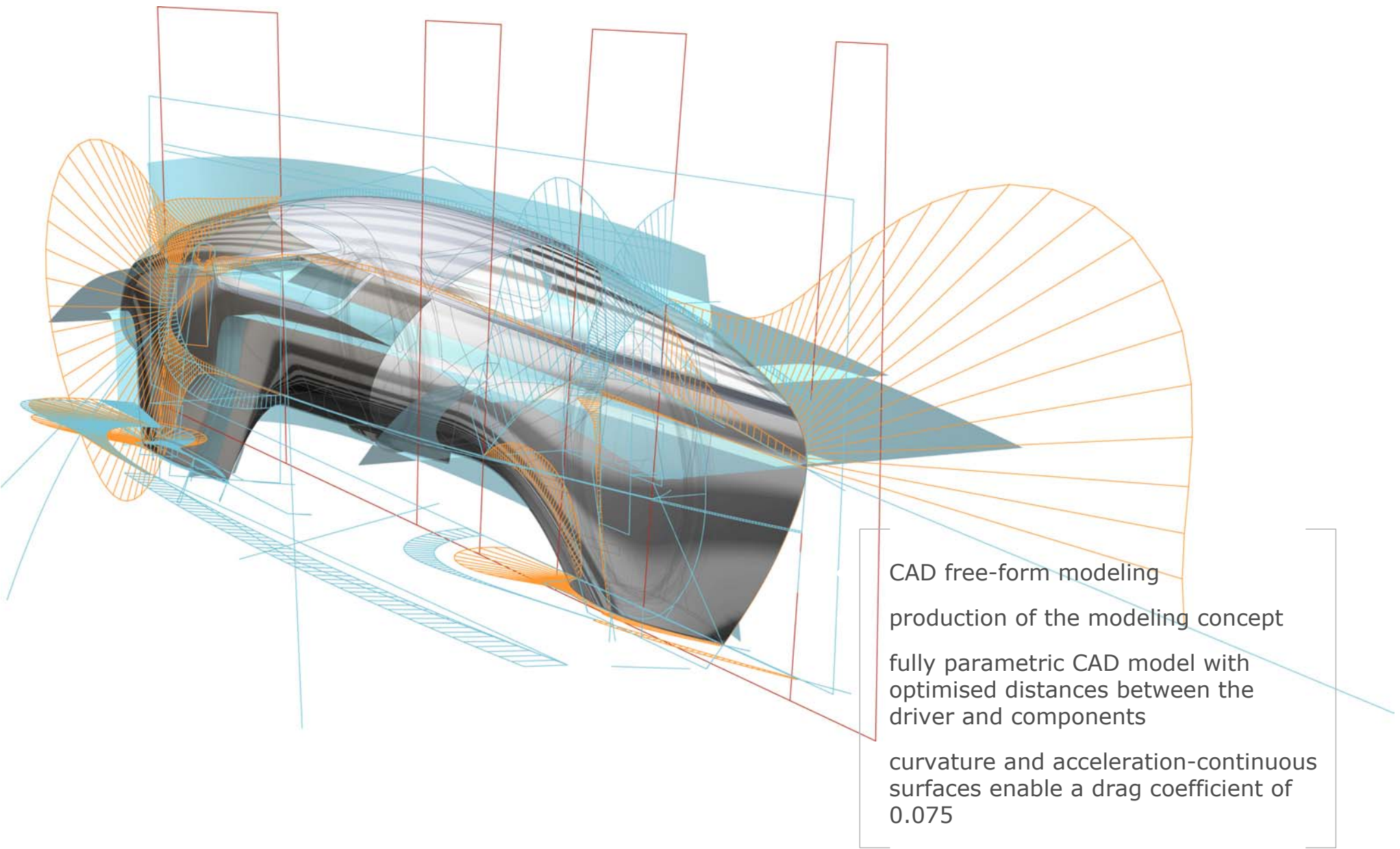
graphic design and color concept
development of the vehicle to
accentuate the defined character

layout within the context of the
sponsoring regulations

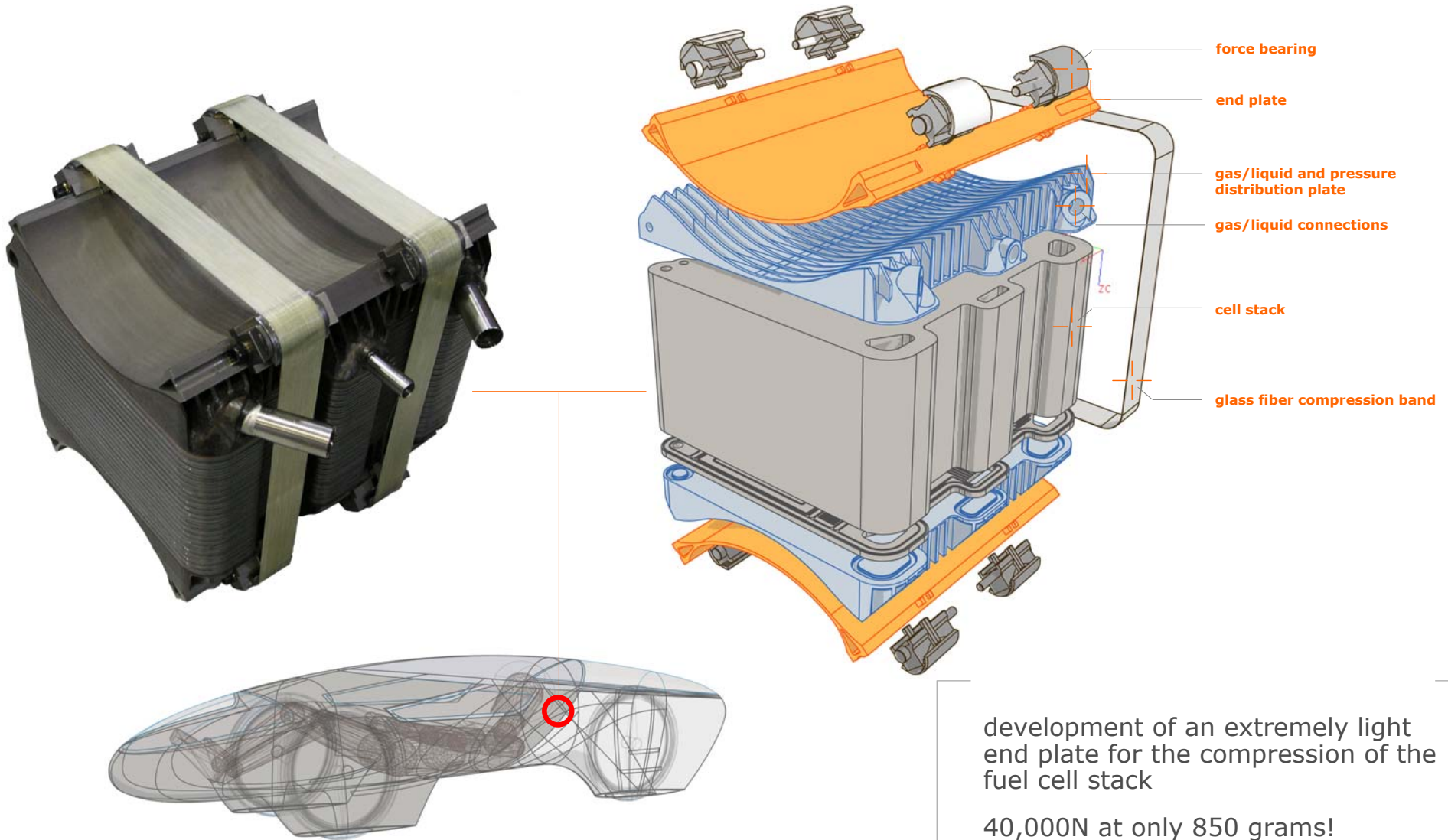
safety-relevant graphics in accordance
with the race regulations

PAC-car II logo design

corporate design of the team
(shirts, flyer, etc.)



engineering | D.bow endplate technology



development of an extremely light end plate for the compression of the fuel cell stack

40,000N at only 850 grams!

use of the Tribecraft D.bow technology

product development:

- ▶ c o n c e p t i o n
- ▶ d e s i g n
- ▶ e n g i n e e r i n g

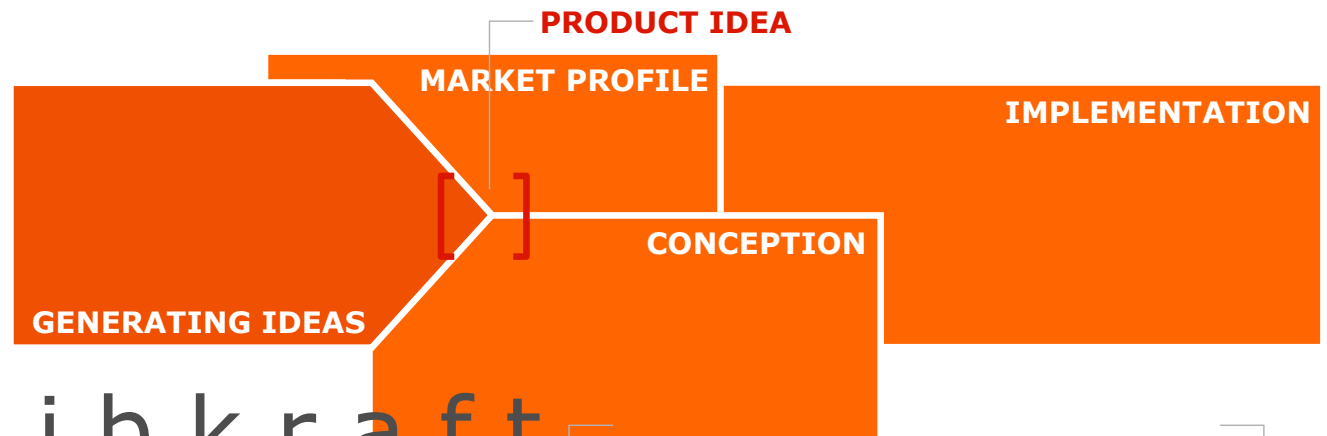
Tribecraft is the partner of choice for innovation.

We are an interdisciplinary team of specialists from a range of product development sectors.

Applying a holistic approach, we work out target-oriented solutions throughout the entire process – from analysis to series production.

PRODUCT DEVELOPMENT PROCESS

INITIATION | PROJECT BEGINS



focussing on early phases
holistic way of thinking
solutions for every stage of the process
sector-spanning expertise

Conception is the gathering and development of knowledge about things and the search for solutions. Our interdisciplinary expertise applies methodology to our innate curiosity, enjoyment of puzzles and desire to know more. The results are ideas with potential.

- Our focus is conception, the coming up with concepts. This is the true driver of products that make sense – for our clients and for end users.



conception

- use and environment analyses
- competitive product analyses
- idea generation / product vision
- finding solutions
- creativity methods / moderation

Design gives essential shape to the nexus between things and human beings. Products must conform to the ergonomics of the user. And they must communicate to function: What they ARE, how to use them, where they belong, their character.

We take care of that red thread that tells what the product is able to do, and what it is.

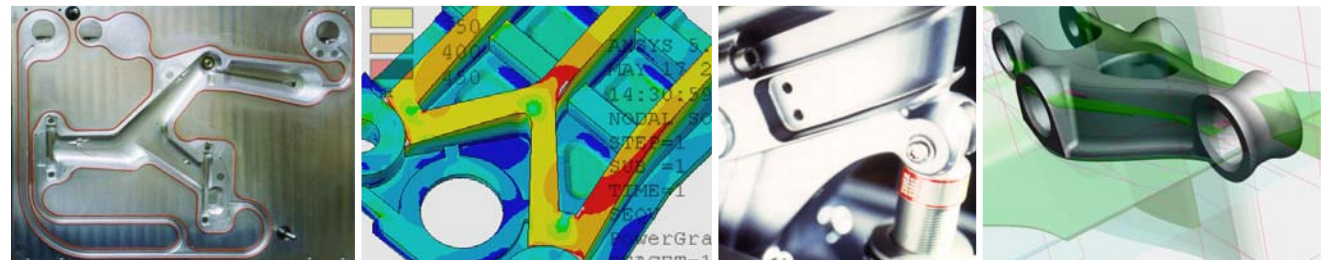
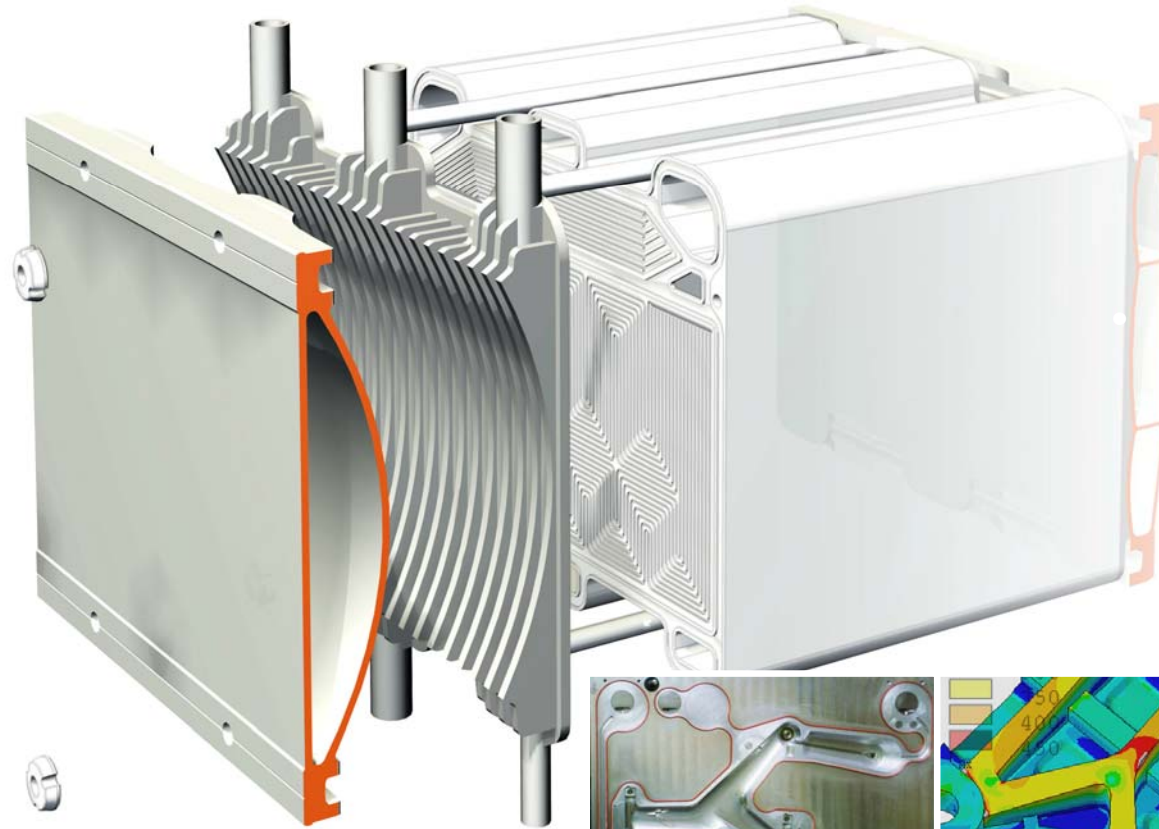


design

industrial / product design
corporate design development
interaction / interface design
product graphics
market appearance

Engineering is the deep technical understanding of the functionality of a thing, the possibilities contained within its production, and the physical and economic world in which products must make their presence felt.

In short, we possess the expertise and the crafts to guarantee that, at the end of the process, the products directly in front of you are real.



engineering

structural calculations
prototypes + testing equipment
construction + product support
full parametric CAD modeling
series production / MFG support