



## *Engineering services since 1998*

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**contact:** Dipl.-Ing. Rainer Böke

## ■ Figures Data Facts

- Professional career Rainer Böke
- Professional education as a steel mould maker
- Dipl.-Ing. Foundry technology, studies FH Gießen-Friedberg / TU Bergakademie Freiberg
- Mould making at Honsel-Werke AG, Meschede
- Mould design at CADForm Engineering GmbH, Homberg
- Engine development at Adam Opel AG Rüsselsheim and General Motors / Detroit / USA
- Foundation engineering office 1998
- 4 Employees
- CAD licenses for **Catia V5**, **Siemens NX 12** (formerly Unigraphics)
- Stress analysis with **NX-Nastran**
- Mold filling and solidification simulation with **InspireCast / Altair**
- Weight/structure optimization with **InspireStructures / Altair**

## ■ Range of services

### **Product engineering**

- Tool-oriented product development
- Development of metal / plastic combinations
- Device part development
- Weight optimization of components

### **Tool engineering**

- Tool layout and dimensioning
- Gate calculation, design and optimization
- tool-technological optimisation of products
- Die casting tools (Al, Mg, Zn) up to 60 tons; 4-slide moulds  
3-platen tools with central gate, V-engine tools
- Injection moulding tools
- Moulds and core boxes for low pressure or gravity processes
- Construction of pattern equipment for sand casting
- Trimming tools

## ■ Range of services

### **Consulting**

- Quality management for castings
- Trouble-Shooting at home and abroad
- Foundry technical support and advice
- Design advice and solutions
- Support for optimisation and rationalisation projects
- Coordination between producer and customer
- Mediation between producer, supplier and customer
- Support during development and start of production
- Foundry technology in-house training
- Assistance with business takeovers
- Personnel qualification for new company formations at home and abroad
- Factory planning and new commissioning

## ■ Range of services

### **Staff training**

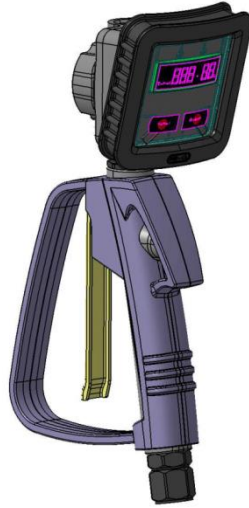
- Training foundry technology basics in die casting, gravity die casting, sand casting, injection moulding
- Training tool-compatible design of cast and injection moulded parts
- Training calculation of castings, price calculation taking into account various influencing factors such as material prices, alloys, manufacturing costs, general costs, determination of added value and contribution margin for primary formed parts
- Training gate calculation of die casting parts
- Training in casting and gating in gravity casting

## ■ References

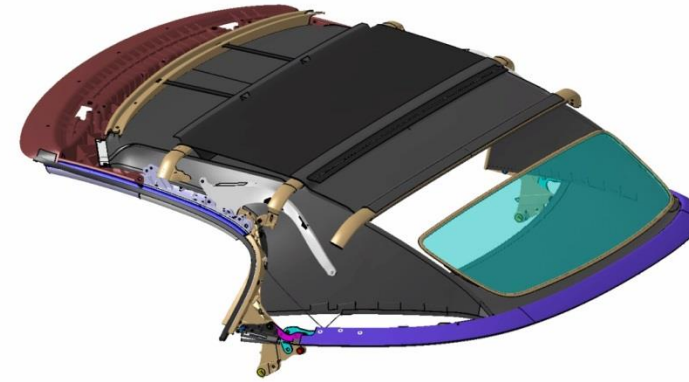
DAIMLER



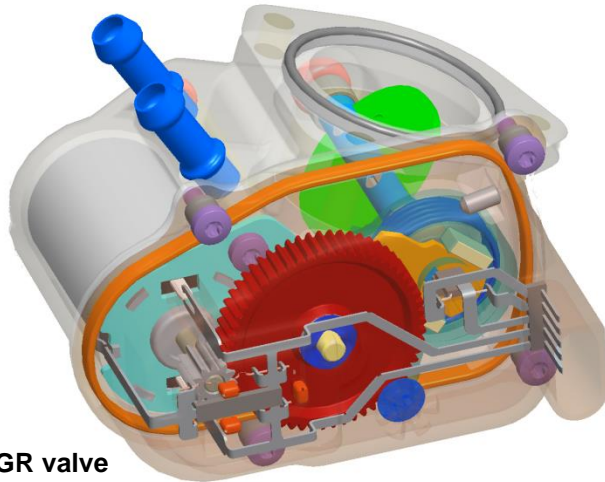
## ■ Product engineering devices



Flow meter



Mechanics convertible roof



EGR valve

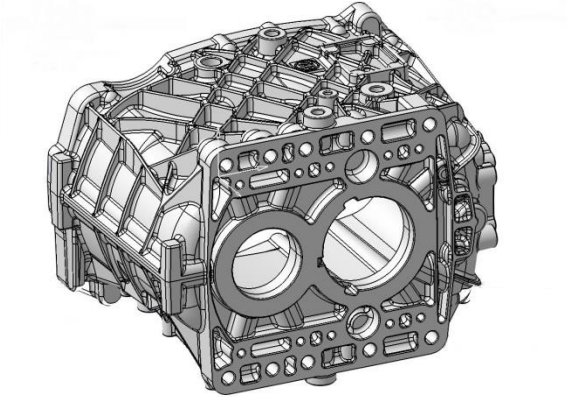


Air conditioning control

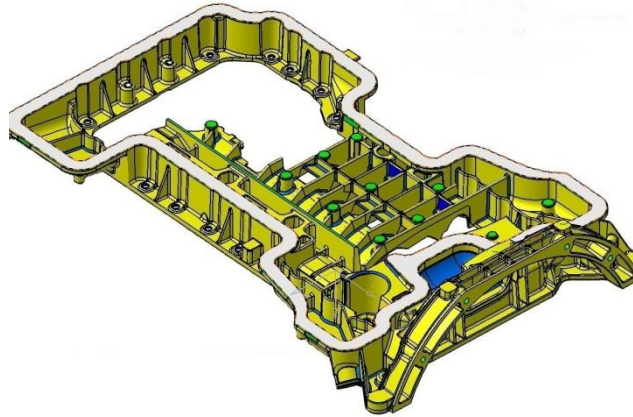


## ■ Product engineering castings

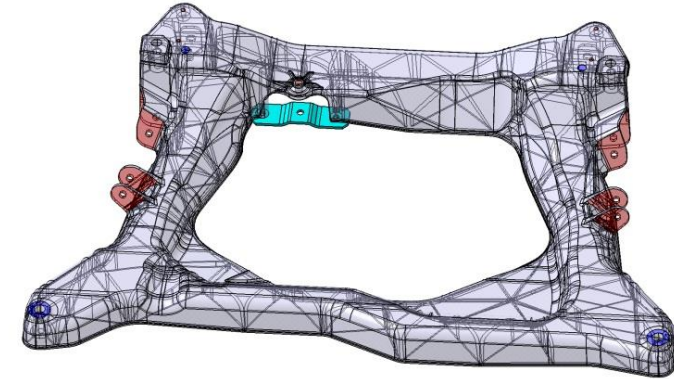
Gearbox housing



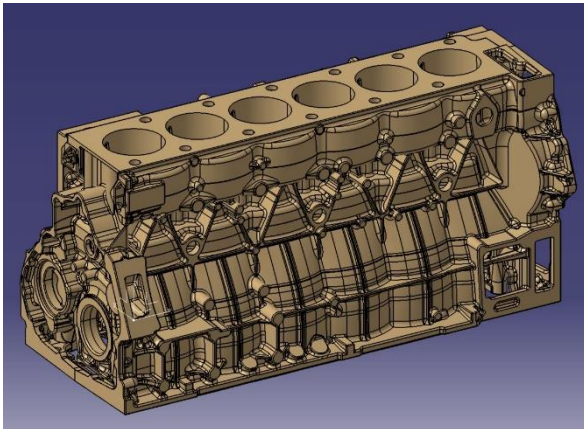
Bedplate V6/V8



Subframe



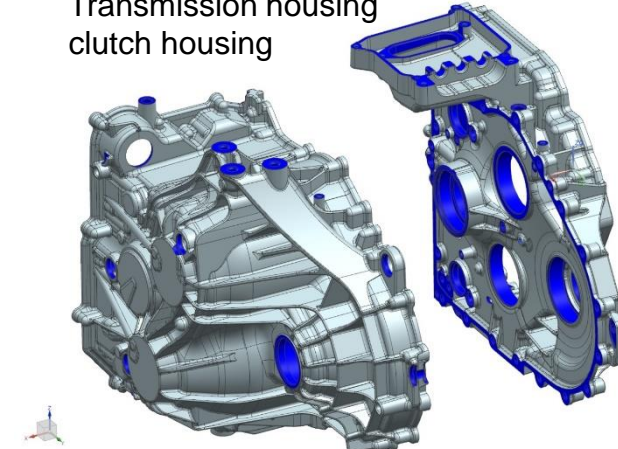
6-cylinder truck engine



steering plate



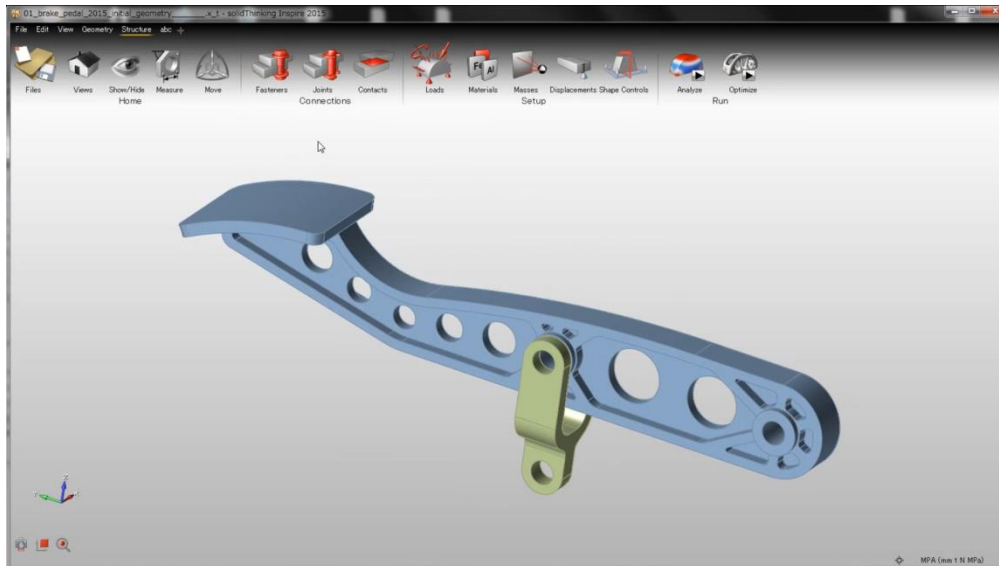
Transmission housing  
clutch housing



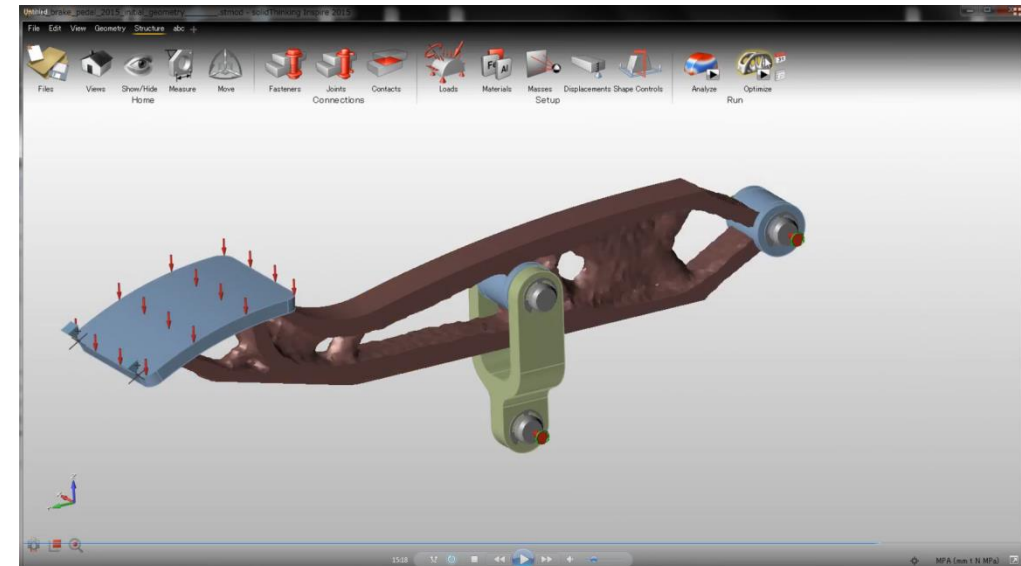


## ■ Weight optimization of cast metal and plastic parts

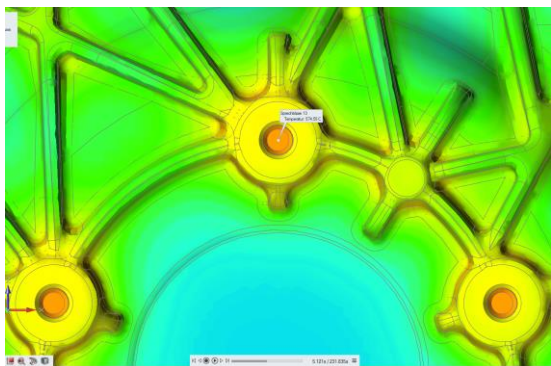
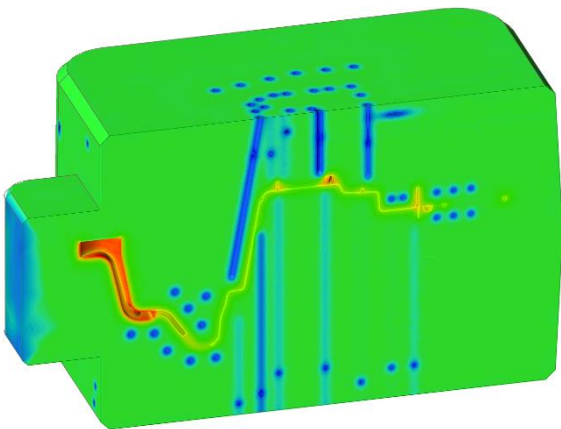
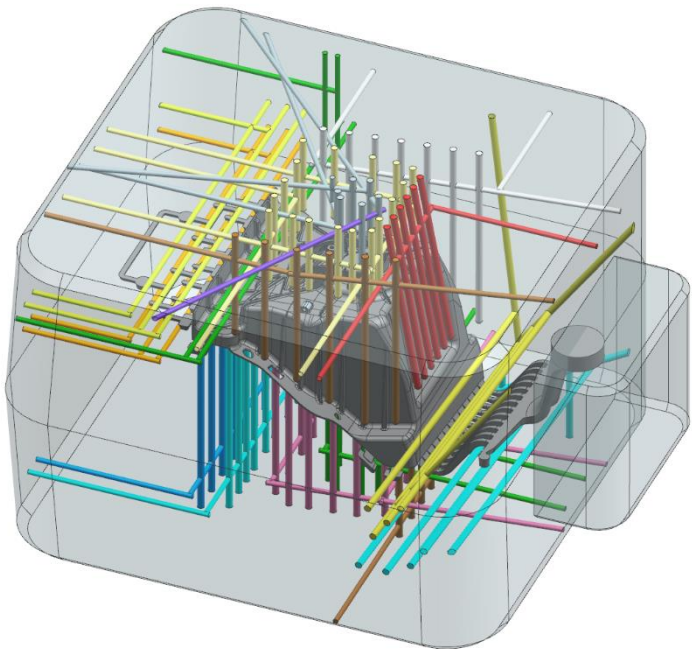
Weight optimization of a brake pedal,  
Aluminium gravity die casting, initial state



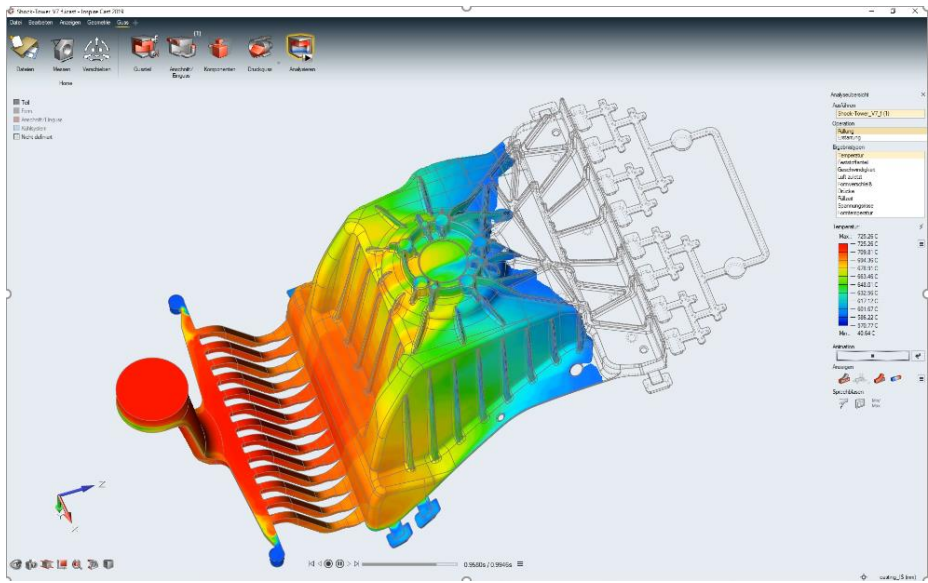
Reduction of weight by approx. 15%,  
suggested structure



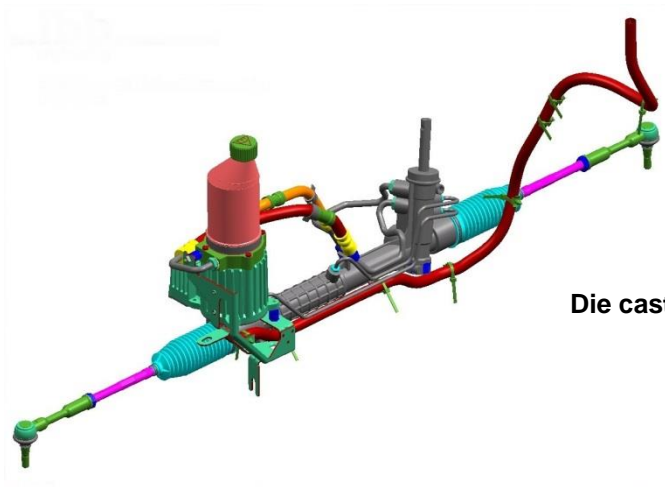
FEM calculation casting / Software InspireCast



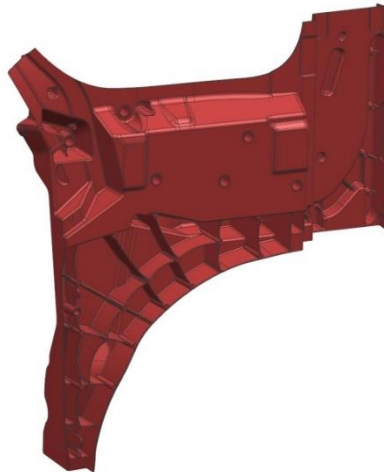
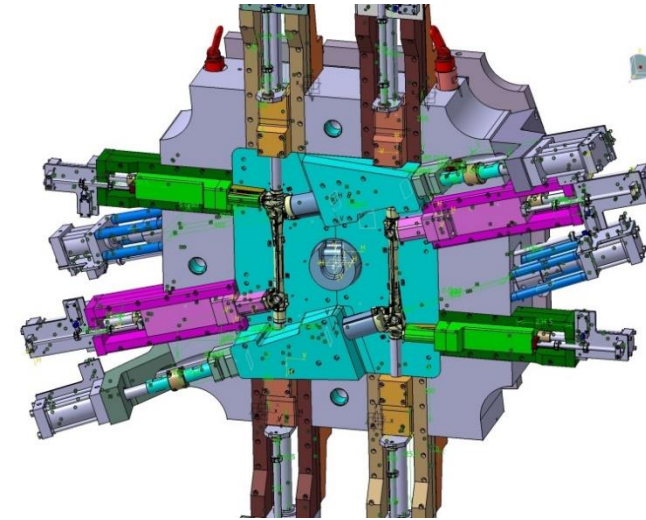
Simulation of structural part shock tower filling / cooling / solidification / porosities



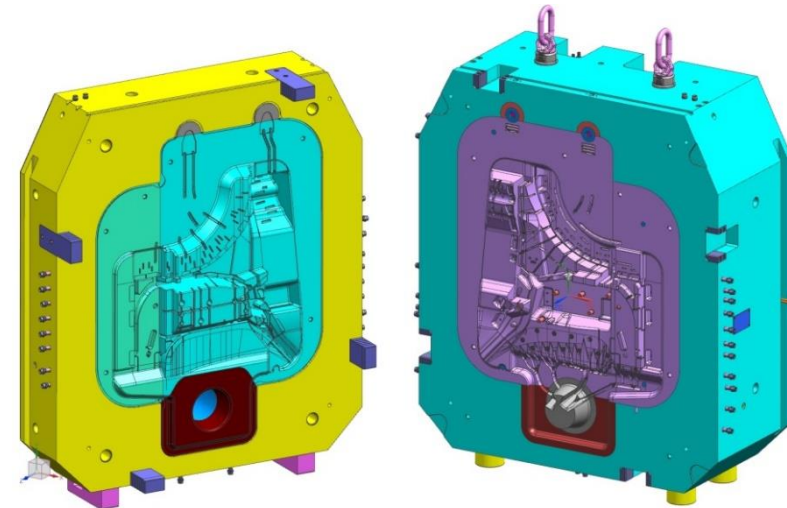
## ■ Engineering aluminium die casting



Die casting tool steering box

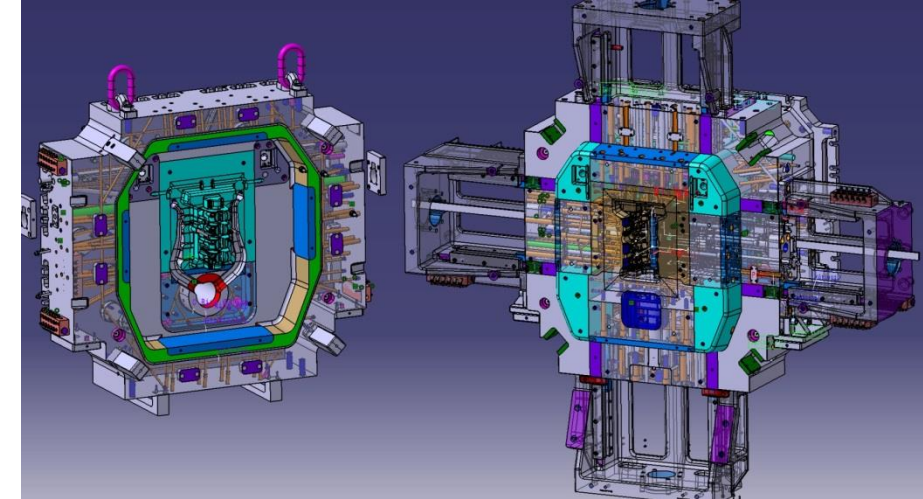
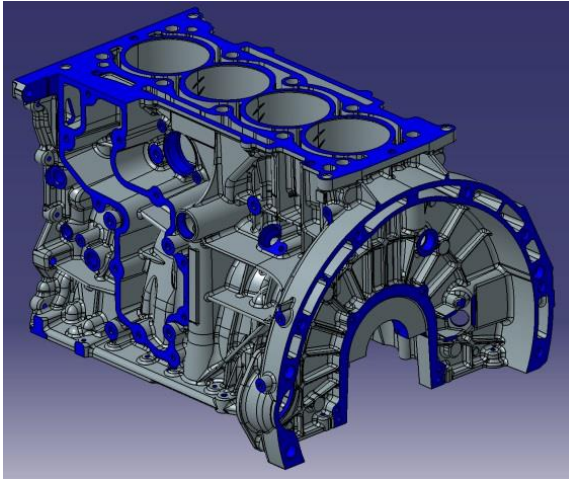


Die-casting tool A-pillar  
Structural part

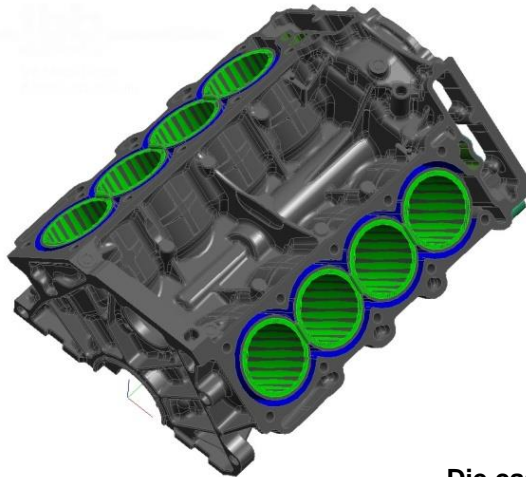




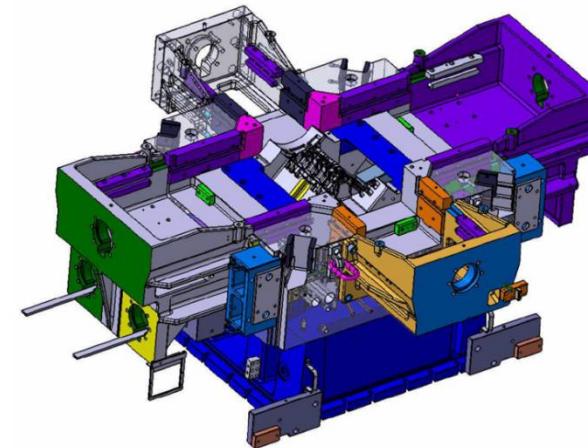
## ■ Engineering Aluminium die casting



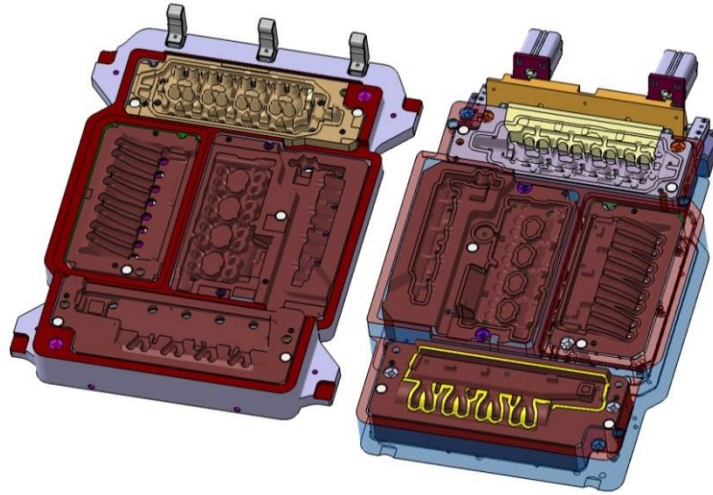
Die casting tool 4 cylinder engine block



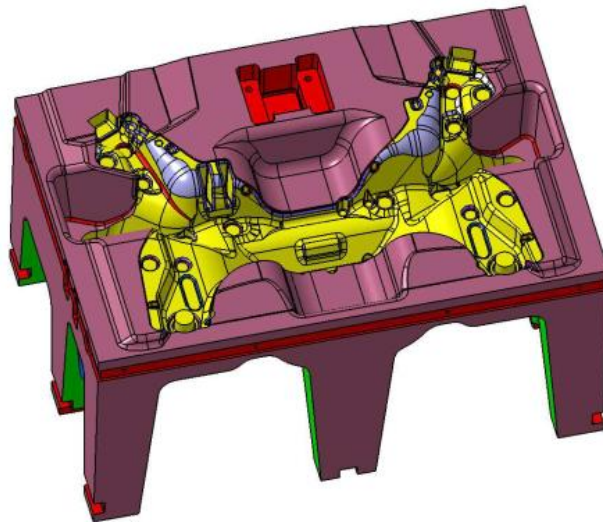
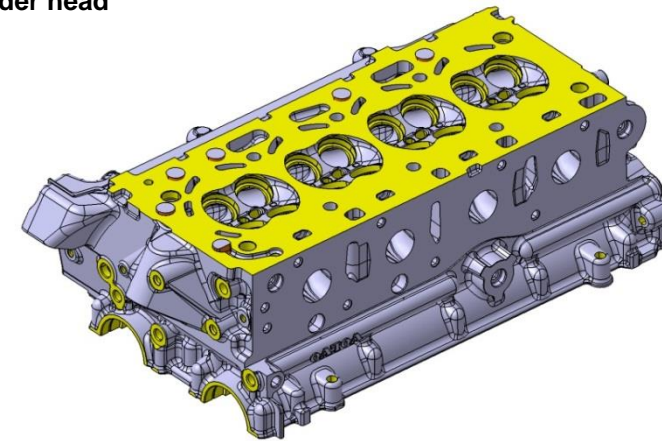
Die casting tool V8 engine block



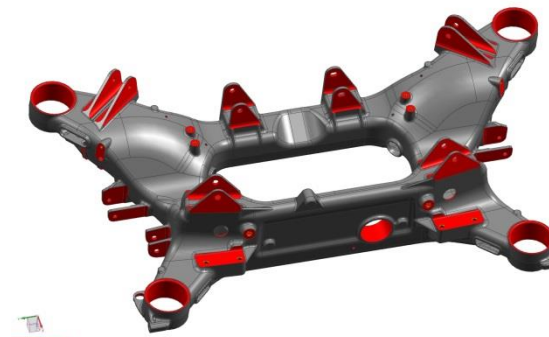
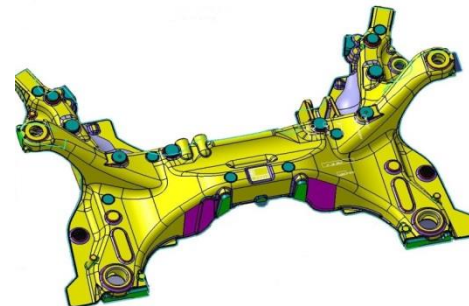
## ■ Engineering aluminium gravity die casting



Core box cylinder head

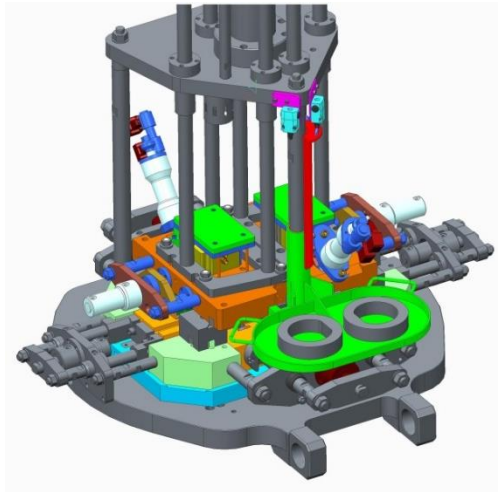


Mould for subframe

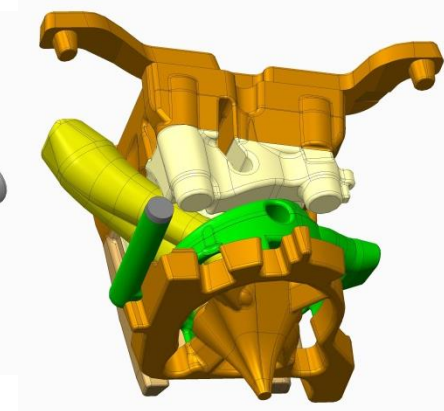
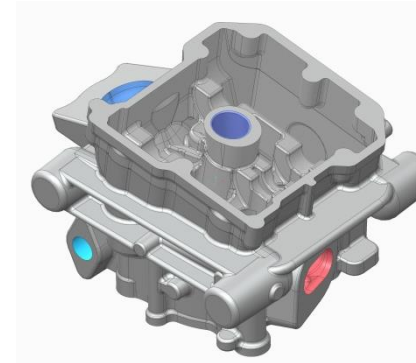




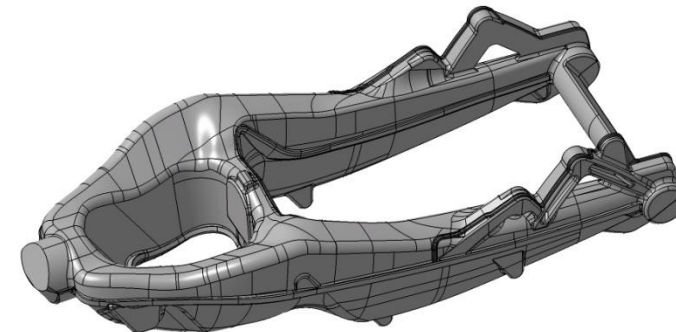
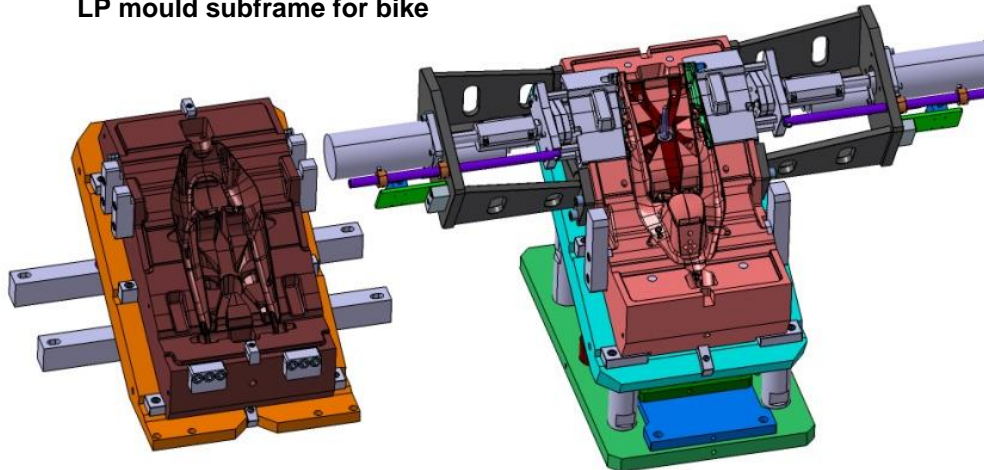
## ■ Engineering aluminium low pressure die casting



LP mould cylinder head



LP mould subframe for bike

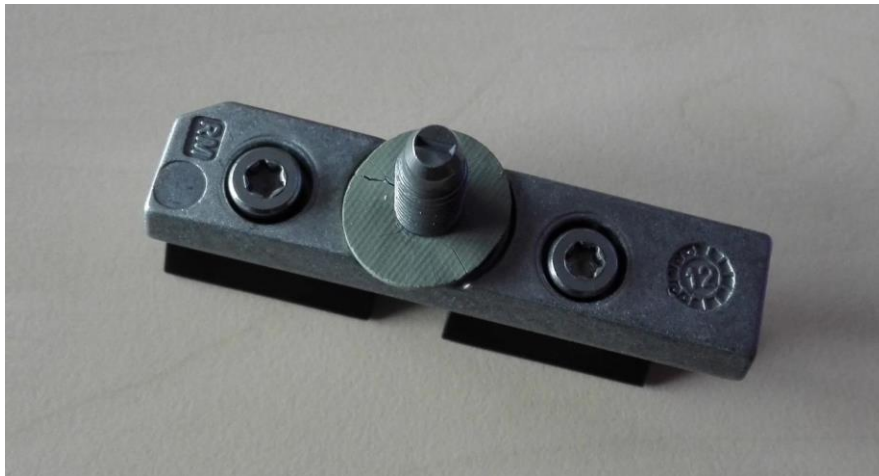


## ■ Foundry technical support and advice



### Die cast parts roof rails

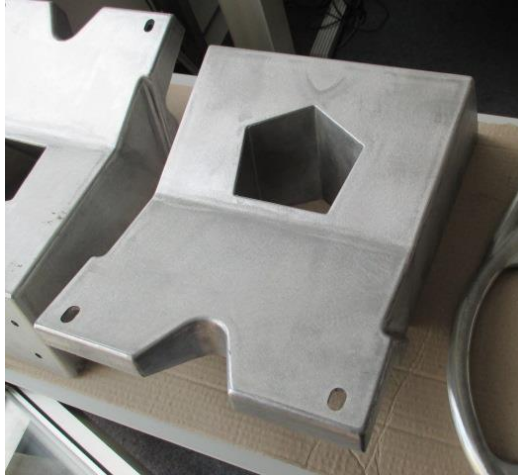
- Production in Eastern Europe according to TS 16949
- age-hardenable Silafont alloy
- Vacuum die casting / Helicoil insertsHeat treatment T6
- Monthly capacity approx. 25,000 parts
- **road safety components** subject to documentation



### Die cast parts roof rails

- Production in Asia according to TS 16949
- Silafont alloy
- Monthly capacity approx. 32,500 parts
- Assembly of various parts

## ■ Foundry technical support and advice



### Die cast parts regional railway

- Production in Asia according to ISO 9001
- Standard aluminium alloy
- Prototype production
- Series production
- Surface treatment
- 5 different parts in total



### Die cast parts regional railway

- Production in Asia according to ISO 9001
- Standard aluminium alloy
- Prototype production
- Series production
- Surface treatment
- 5 different parts in total