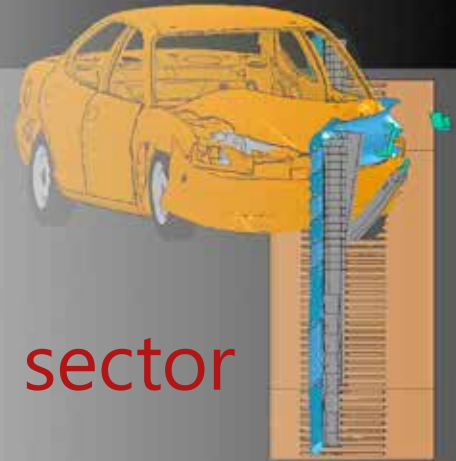


# Engineering Services

Your partner for technical support in the automotive sector



We support you in the following tasks:

- ✓ **HOMOLOGATION SUPPORT**
- ✓ **DESIGN / CONSTRUCTION OF VEHICLE COMPONENTS**
- ✓ **CONSULTING / PROJECT SUPPORT**
- ✓ **FEM-BASED CALCULATIONS AND SIMULATIONS**
- ✓ **TRAINING AND PROFESSIONAL DEVELOPMENT EVENTS**



Homologations from motor scooters to HGVs, for all motor vehicles and their trailers

## HOMOLOGATION SUPPORT

Are you looking for support in preparing Swiss homologation documents? You can confidently leave the complete process to us. No matter whether passenger cars, HGVs, buses, motorcycles, electric vehicles or special vehicles of any kind. We support you competently in all vehicle categories. As an accredited test centre, we are also able to carry out the necessary homologation tests for any modifications, load increases or other changes to the vehicle in-house.

## YOUR BENEFITS

### Approval documents

Professional support in homologation issues through our many years of know-how.

### FEM analysis

Conclusive and reliable FEM calculations supported by the latest infrastructure.

### Mathematical strength assessments

Cost savings as a result of replacing real tests with dynamic simulation.

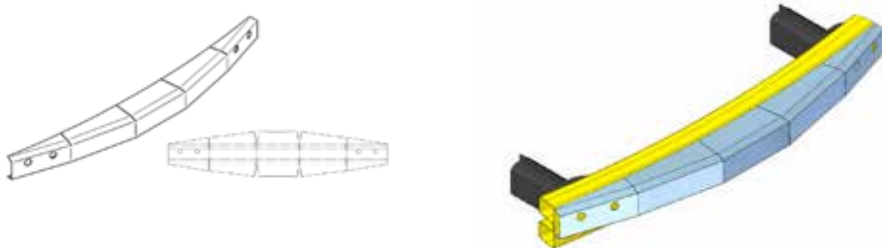
### Learn automotive engineering from the bottom up

Customised solutions for training and professional development.

## CONSTRUCTION

We can support you in the design and construction of:

- Chassis components
- Devices for increasing trailer loads
- Structural modifications to increase the maximum permitted weight
- Energy-absorbing modules for pedestrian protection
- Components on special vehicles, work machines etc.

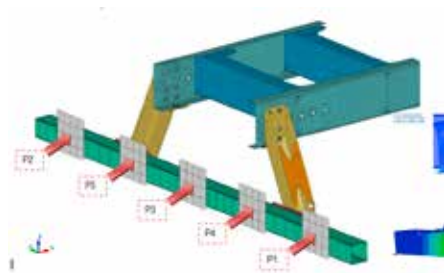


*Retrofitting of energy absorbers to ensure pedestrian safety*

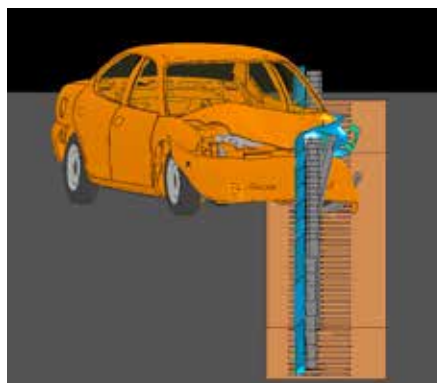
## FEM-BASED CALCULATIONS AND SIMULATION

Benefit from our long-standing experience in finite element calculation. We offer you:

- General structural analysis with FEMAP on statically loaded components
- Quasi-static approval tests for the front and rear under-run protection on HGVs in compliance with ECE R93 et ECE R58
- Simulation of crash barrier impact testing with LS Dyna in accordance to EN 1317 for the approval of system modifications (calculation and visualisation of the complete impact process including all performance parameters for TB 11, TB 32, TB 42, TB 51)
- Calculations for the optimisation of avalanche and rockfall protection systems
- Pre-simulation of dynamic component tests for the optimization of vehicle and aircraft components whose certification requires sled tests



*Simulation of under-run protection according to ECE R58*



*Simulation of crash barrier impact testing according to DIN EN 1317*

## CONSULTANCY / PROJECT SUPPORT

We prepare the risk analyses necessary for functional safety for your electronically controlled machines or vehicle components.

We support you in the design and testing of electronic modules for traffic management and intelligent transportation systems.

Through our proximity to the Department of Automotive Engineering at the Bern University of Applied Sciences, we are your ideal partner for studies and research projects in the automotive sector.

## TRAINING / EVENTS

We offer customized seminars and courses on vehicle engineering, which can be supplemented by practical applications and demonstrations if required. We match the possible course content individually to the level of education and the expectations of the participants.



*Demonstration strength testing laboratory*



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