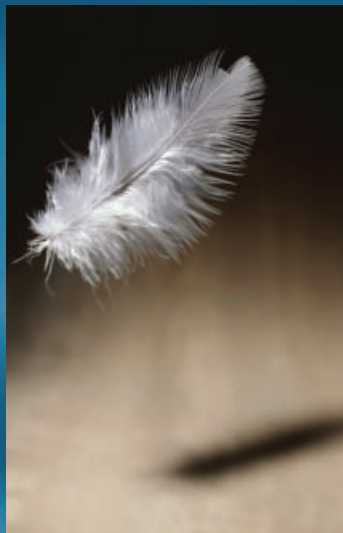


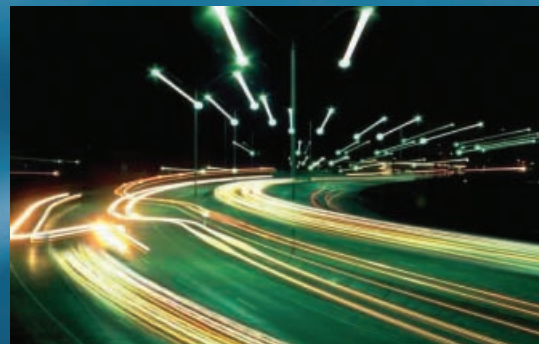
# LowMass<sup>®</sup>

The light solutions

Protection of resources



Weight reduction



Fuel savings

 **BORGERS**

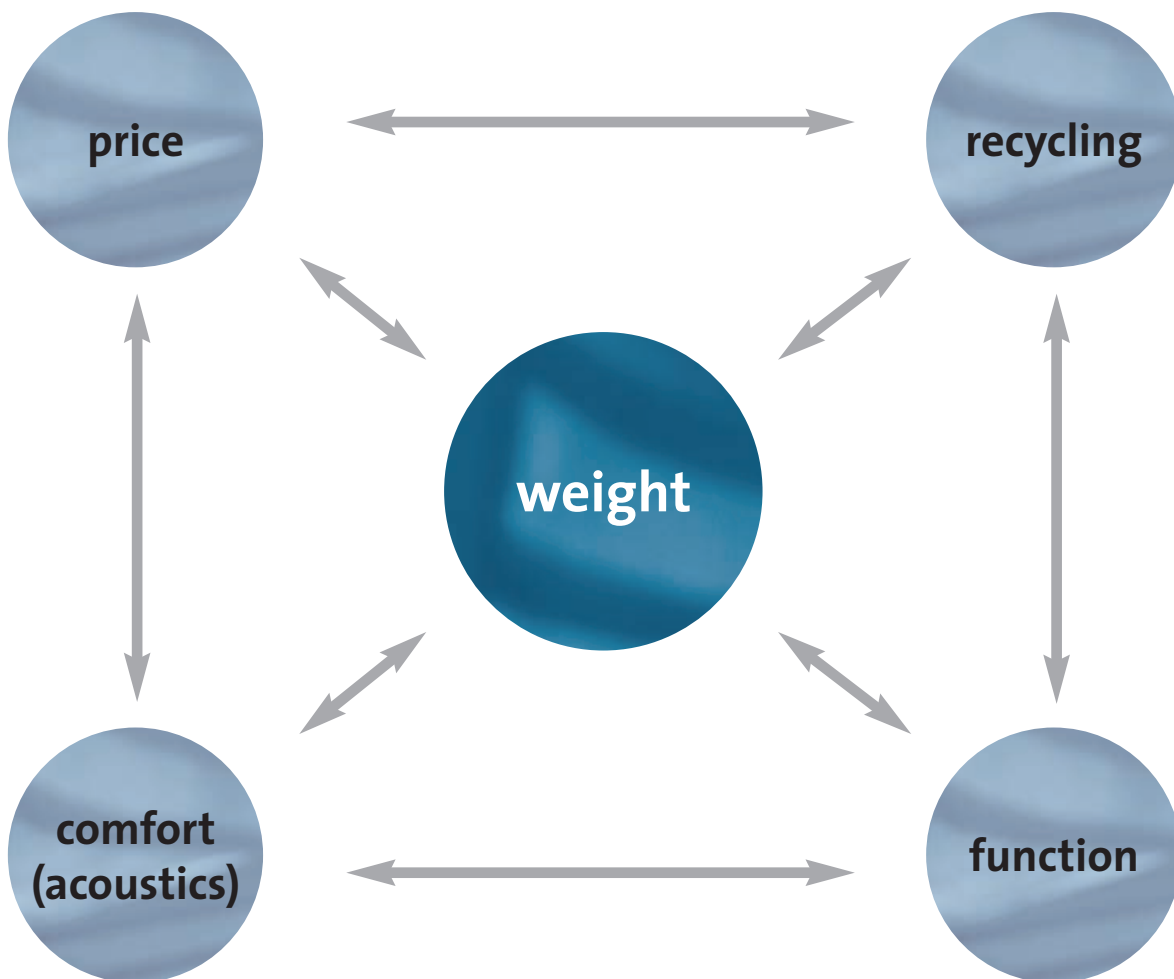
## Starting point: The squaring of the circle

Together with our customers from the automotive industry we are constantly facing the challenge to realize weight reductions in the development of new vehicles – despite increasing demands on comfort, function and safety. Weight reduction is a crucial tool in the improvement of the environment's tolerance of the vehicles by

- the protection of resources,
- a reduction in fuel consumption and thereby
- reduction in CO<sub>2</sub> emissions.

Weight reductions are furthermore an important marketing argument.

Within the framework of the LowMass® philosophy Borgers is therefore developing innovative components, which achieve considerable weight reduction by using alternative materials or amended function principles. All other factors (good price, possibility of recycling, high functional value) are kept at the same value or even improved, if possible. Borgers' solutions that meet these high demands are labelled LowMass®.



LowMass® : weight reductions within conflicting demands.

## The idea: Quality instead of quantity

Due to Borgers' integral development of acoustics, the various components with their acoustic and functional properties are co-ordinated always according to the principle of eliminating noise at the source if possible. Until now the principle of "insulation" has been applied when dealing with the acoustics in a vehicle, i. e. noise is reflected by airtight heavy layers and thus prevented from entering the vehicle. Borgers acoustics development has established in extensive investigations that the desired results can often be achieved by absorption instead, i. e. a reduction of noise by absorbing it into "fleecy" textile materials.

Using modern LowMass® materials and amended construction principles achieve the desired effect with a clear reduction in weight and considerable advantages for recycling.

The speciality of Borgers LowMass® products is that they are not only completely or mostly recyclable, but also consist of up to 90 % of recycling materials already (e. g. shredded cotton, polyester fibres from drinks bottles). At Borgers ecology does not start with the disposal of waste!

## Examples of LowMass® products



1. Load floor



2. Floor carpet mould

### New: textile undershield

Another up to date innovation is the textile LowMass® undershield developed by Borgers. It is used as a replacement for the heavy layer (pvc) applied to the floor panel or for synthetic assembly parts.

Apart from the considerable reduction in weight there are – with a comparable price towards the usual materials – some further, almost revolutionary advantages:

- reduction of the  $C_w$  value
- improved noise insulation
- reduced spray formation when driving in rain
- clearly optimised possibility of recycling and easy dismantling
- considerably reduced emissions during manufacture
- waste-free production due to direct feeding of remnants into the manufacturing process (closed loop).

## Implementation: made to measure

Depending upon customer requirements and special vehicle characteristics individual acoustic concepts are drawn up, whereby each component is examined individually as well as their acoustic interaction. Considerable improvements have been achieved with luggage compartment floors, moulded floor carpets and acoustic function parts like outer wheel arch liners.

Heavy layers were for example replaced in a body platform by the LOWMASS® material *Propylat*® and a weight reduction of 2.4 kg/m<sup>2</sup> or 48 % was achieved with improved acoustic properties. *Propylat*® is manufactured up to 90 % from natural and synthetic recycled fibres, while the use of thermoplastic connective fibres from polypropylene considerably simplifying the manufacturing and recycling, and again feeding remnants straight away back into the manufacturing process.



3. textile wheel arch liner

Replacing ...

1. wood by sandwich construction  
→ weight reduction per load floor: 1.1 kg = 50 %
2. heavy mass layers by *Propylat*® system  
→ weight reduction per floor carpet: 8.4 kg = 48 %
3. synthetics by *Propylat*®  
→ weight reduction with 2 wheel arch liners: 1.5 kg = 50 %

Further LOWMASS® materials, which are used in various combinations with acoustic effective materials, are reinforced foam constructions.

## Competence: 145 years of innovation

Borgers has been a supplier to the automotive industry since its foundation in 1866, although at that time it was only coaches being equipped with upholstery stuffing.

Borgers is actually one of the oldest recycling companies, as the company founder was already devoted to the recycling of used textiles and manufactured upholstery materials from shredded fibres.

Our customers from all over the world benefit from these 145 years of experience and are supplied by 18 plants throughout the world with acoustically efficient components for engine, passenger and luggage compartments. As the inventor of the textile wheel arch liner (exterior) made from *Propylat*<sup>®</sup>, Borgers set the standard for the innovative use of textile materials.

Because of our proven competence in acoustic development and lightweight construction, Borgers get integrated by their automotive customers very early on into the development of their new models and thus can exert a decisive influence on acoustic optimizations. Our development and construction, as well as building our own forms, tools and machines, make it possible to achieve optimum control of the total value added chain from development to final product.

Today Borgers is the development and system supplier for:

- luggage compartment trims
- floor carpet systems
- outer wheelarch liners
- package trays
- insulation systems

“Centralised development and decentralised production” as well as “think globally and act locally” – with these principles Borgers are known by their customers as a flexible and reliable partner, which shows in a long-term increase in turnover to currently € 527 million (2010).

The company is still owned and run by the founder’s family.





LowMass®

 **BORGERS**

**Would you like to know more?**

Dipl.-Ing. Klaus Menke  
Technical Development Manager  
Johann Borgers GmbH & Co. KG  
Borgersstraße 2-10  
D-46397 Bocholt  
Tel.: +49 (0) 28 71 / 345-737  
e-mail: [kmenke@borgers-group.com](mailto:kmenke@borgers-group.com)