



Compression moulded parts

Making ideas come to life

Compression moulding technology from lightweight solutions offers you an entirely new range of design options for manufacturing three-dimensional compression moulded parts.

Developed in-house, our technology enables the processing of ultramodern types of materials based on renewable raw materials.

The method enables the straightforward, efficient handling of even small and medium batch sizes as part of an industrial-scale manufacturing process.

Key features of our compression moulded parts:

- Great flexibility in terms of design
- Wide range of potential applications
- Authentic and natural visual appeal
- Configurable technical properties
- High dimensional stability and low manufacturing tolerances
- Carbon-neutral material basis
- Low-emission production



The perfect material for your application

Turning design data into compression moulded parts materialises your ideas – quite literally.

Apart from form and function, the starting material can also play a decisive part in the success of your application.

To identify the correct proportions of malleability, dimensional stability, mechanical properties, temperature stability, as well as the processing and machining for your application, a range of material types are available, based on renewable natural resources.

These types of materials typically consist of plant or wood fibres, which are then processed into a non-woven or panel-like state by the application of an environmentally friendly binder. These semi-finished materials are then machine-pressed into compression moulded parts.

We can offer you comprehensive expertise and in-depth advice on all queries relating to material selection.

Key advantages of our material types:

- High deformability
- Formaldehyde-free binder (NAF)
- Straightforward machining and processing
- Wide range of finishing options for material surfaces
- Maximum cost-effectiveness





reddot award 2015
honourable mention



wiesner hager concept

Case studies

Design meets quality

The chair family nooi is the brainchild of the neunzig° design studio, and arose from the idea of producing a convincing solution for any chair application simply with a curved shape and various chair frame variants.

The delicate, high-precision compression moulded parts for the nooi are manufactured from 3MF. They enable upholstery to be kept especially thin, with a minimal gap to the chair shell.



Local embossing to simplify assembly

100% quality in design and dimensional tolerance

Minimal warpage and torsion

Multifunctional by design

With no limits on geometries, compression moulded parts enable the integration of modern design and functionality.

3MF is unique among materials for its precise implementation of contours. For the b_sit, the design geometry serves a dual purpose – both positioning and reinforcing the compression moulded part.

Captive nuts for assembly

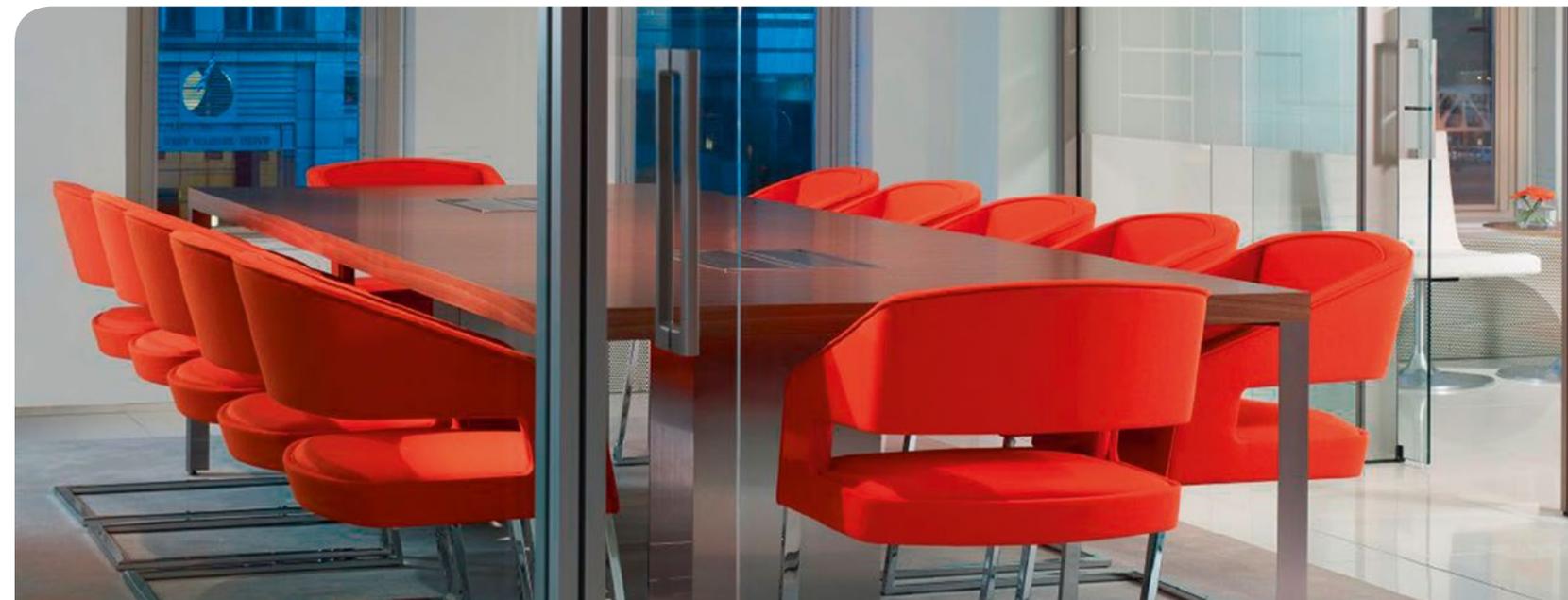
Robust seating surface for the chair frame



Precision-milled recess for the seat area

The cantilever chair, one of the most brilliant products of the Bauhaus movement, has been reinterpreted with b_sit.

Dedicated support is offered for the lumbar area, while the armrests provide support without impeding freedom of movement. The sprung frame relieves pressure on the spinal column. An entirely harmonious design, timeless and individual.





Perfectly embedded

Nava is a multipurpose chair whose wide range of frame options make it suitable for a great many applications. The flexible, ergonomically shaped chair shell offers excellent comfort even during long periods of sitting.

3MF ensures maximum design freedom

Variable use of metal fitting systems

- Blind rivet nuts
- Captive nuts

Local deep embossing

- Clearance for material overlaps
- No sign of the metal fitting system used on the surface



Inspiringly diverse applications

Strobel & Walter chose compression moulding technology from lightweight solutions for their Yogaboard balance trainer to bring fresh new ideas into the sport and fitness industry.

For the production of the boards, Strobel & Walter have turned to durable and environmentally friendly raw materials, so as to guarantee real 'Made in Germany' quality.

Featuring a hollow-core design and weighing in at just 11 kg, the board was the Gold Winner of the 2017 ISPO AWARD in the Health & Fitness category.

Thin-walled, 3D-moulded 3MF undershell with post-moulding engraving and surface finishing

Dimensions of compression moulded part
1,760 × 425 mm



Balancing on the curvilinear underside of the Yogaboard strengthens the user's sense of equilibrium and takes body control skills to the next level.





Natural aesthetics for a functional design

With their natural visual appeal, compression moulded parts made from plant fibres are very effective at adding a decorative touch – such as when packaging premium goods.

The technical properties of non-woven materials make them especially suitable for use in producing compression moulded parts with a high degree of deformation.

Complex design geometries with plant fibre composites

Part thicknesses from 0.8 mm





Modern design, ultra-light weight

With the TRAVELINO, KNAUS is revolutionising the caravan market.

At KNAUS, the UltraLight range is all about lightweight construction. Alongside familiar topics such as sandwich construction or multicore materials, the materials and technologies used – such as COLDMELT – now offer new possibilities. The interior fit-out is also a crucial part of producing a fully featured 4-berth caravan with a gross vehicle weight of just 750 kg.

With the compression moulding technology developed by lightweight solutions, the quality and design features of a modern automotive interior are now also available to the leisure and caravan market.

This method offers a straightforward and efficient way to produce compression moulded parts based on renewable raw materials in an industrial-scale manufacturing process.



Complex, three-dimensional geometry

Use of textile lining provides visual appeal

Thanks to the assembly tabs created during the moulding process, the TRAVELINO's weight-optimised ceiling panel element can be fixed to the caravan roof without using a single screw.

Optimised weight (thin-walled)

Pioneering compression moulding technology

Innovative production technology as the basis for high-precision compression moulded parts made from natural fibres

As part of the Environmental Innovation Programme launched by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, lightweight solutions GmbH has set up a large-scale commercial production facility.

The aim of this project was to develop and implement the energy- and resource-efficient production technologies required for the manufacture of the lightweight material lisocore®.

The compression moulding technology forms part of this production facility and has the following key features:

- Cost-effective, rapid-cycle production
- High-precision position controls
- Operator-programmable press stroke
- Press process diagnosis in real time
- Energy-efficient drive systems
- Energy recovery systems



lisocore®
LIGHTWEIGHT PERFORMANCE



Our services for your success

From the idea to the finished part

We can handle the entire production process

From CAD work and prototyping through to the high-volume production of dimensionally accurate parts, plus quality assurance and outbound delivery. Depending on customer requirements, delivery can be as a blank or (semi-)finished part.

Our customers value our wealth of technological expertise and our sound product advice. Our work is generally order-based, and we coordinate our production work to match our customers' individual manufacturing processes.

In addition, our internal R&D department can provide support to our customers for upstream processes such as product development, for example.

Our compression moulding experts have one goal: fulfilling your design and execution requirements.

Our portfolio of services ranges from comprehensive technical consulting to toolmaking for high-volume manufacturing and on to the successful and timely production run.

- CAD work
- Prototyping
- Toolmaking
- CNC machining
- Surface finishing
- Part measurement and measurement reports
- Reverse engineering
- Part digitisation
- Quality assurance





It's all in the name

We develop and manufacture materials and products according to the principles of modern lightweight design. Our solutions offer added value and set standards in design freedom, machinability, and quality. The main focus of our work is customer and company benefits and the efficient and resource-saving use of raw materials.

Everything we do today must prove itself tomorrow and meet the world's changing requirements. A continuously innovative process and intensive research and development guarantee the performance of our products now and in the future.

Tested quality

Our products undergo intensive testing, being put through conclusive long-term tests in our in-house test laboratory. The technical quality criteria for product safety take top priority, and we meet these requirements by working closely with our customers.



for a new sense of being light



Awarded the innovation prize for the European Forest-Based Sector



lightweight SOLUTIONS

for a new sense of being light

lightweight solutions GmbH

Carl-von-Ossietzky-Str. 17–21
83043 Bad Aibling, Germany

www.lightweight-solutions.de

fon +49 8061 34979-0

fax +49 8061 34979-99

info@lightweight-solutions.de

The information in this brochure is based on practical experience and our own tests and reflects the state of our current knowledge. The supplied data is for informational purposes only and does not guarantee product properties or product suitability for certain uses.

