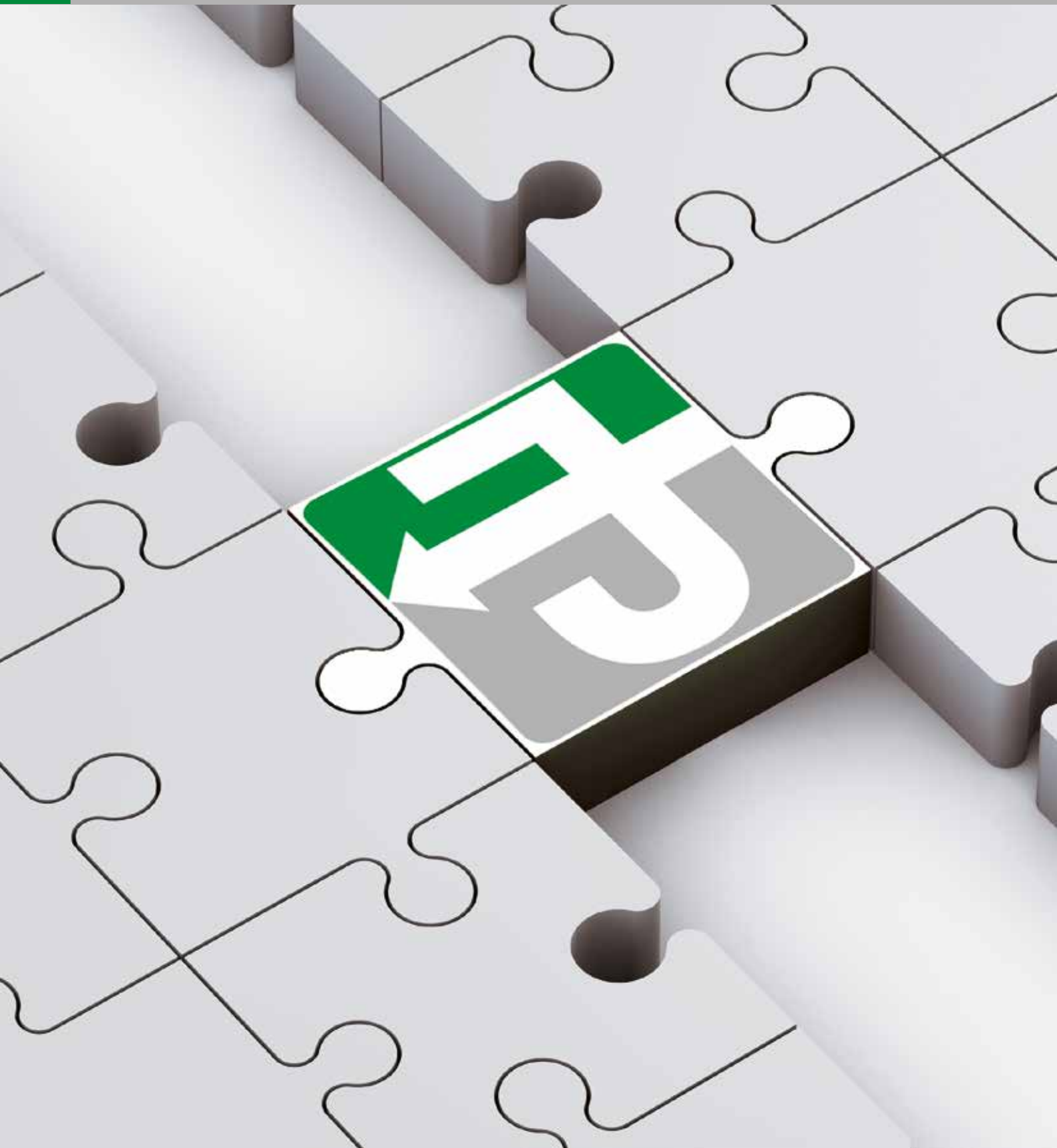


# Added Value by Performance Modules

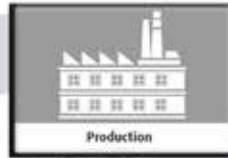
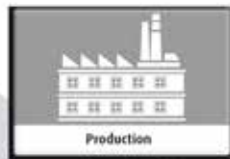


# We are Jäger



## Canada

Airdrie  
Lloyminster



## Asia

Shenzhen



## USA

La Porte  
Pine City  
Woodland

## Europe

Hanover  
Veendam  
Gryfino



Dipl.-Ing. Sebastian Jäger    Dr.-Ing. Andreas Jäger    Dipl.-Kfm. Marius-Quintus Jäger

## We Grew Up with Rubber

Since 1942, when Gummi-Jäger, the parent company of Jäger Gummi und Kunststoff GmbH, was founded, application-oriented advisory service, material-oriented construction and system related development are the key for the Jäger Group's success.

Our competence and efficiency continuously raised according to the customers' demands. Our success is based on continuous product innovation, advice independent from the material as well as a friendly, competent service and zero-defect philosophy competent service.

The family business in its third generation operates world wide and is a qualified partner in the field of environmental and agricultural industry as well as in machine and plant engineering and oil exploration. Over 800 employees working in more than 20 sites in Europe, the USA and China aim to ensure that.

## Our Philosophy

Thinking across departments and corporate boundaries as well as generating competitive advantages for one's own company, customers and suppliers: Due to these guiding-principles the Jaeger Group of Companies is a professional partner in all branches.

### **Confidence in Cooperation**

Successful customer relationships are based on trust. For us, this means reliability in our promises and actions, fairness in equal partnership and the trustworthiness of the Jäger entrepreneur family.

### **Reliability in Partnership**

Joint work with the most various suppliers guarantees competitive advantages for our customers.

### **Understanding in Problem Solution**

By the combination of the most different materials and the integration of various functions in a system component we guarantee our customers a lasting advantage in competition.



# Supply Chain Management

## Added Value by Performance Modules



### Competent Solutions

State-of-the-art high performance products meeting the requirements of its application, just-in-time deliveries at a fair price, provided by an international operating partner guaranteeing focused and competent service.

### Performance and Service

To get real added value for our customers, we combine single performance modules forming an overall package, starting with customer specific consulting and early integration into our customers' development teams. A design corresponding both functional and manufacturing needs creates the basis for an efficient project management.

We provide optimal transparency and cost control combined with the high requirements of DIN EN ISO 9001.





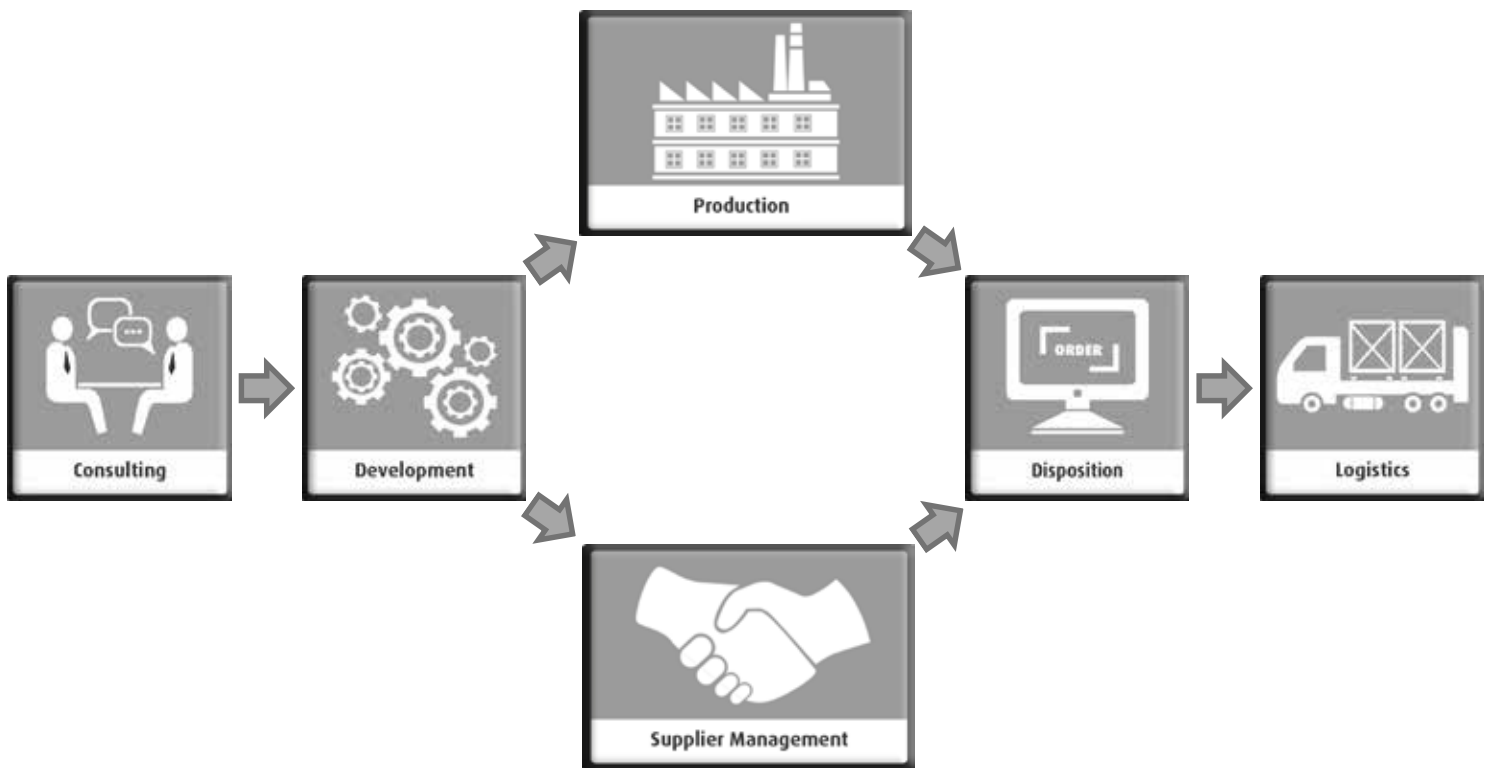
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# Consulting

## Providing Solutions for Sustainable Added Value



### Consultation is our Strength

From customer-specific parts development to comprehensive logistics concepts – Jäger Gummi und Kunststoff GmbH provides everything from a single source. To maximize efficiency we optimize supply chains together with our customers.

Our experienced sales team analyzes our own process costs as well as those of our strategic suppliers and customers to create a flexible, tailor made Supply Chain Management system. Our know-how for your added value.

### Product Competence

Our knowledge of elastomer and thermoplastic material properties is supplemented by our easy-to-manufacture functional designs. To this end, we use the expertise of manufacturing operations within the Jäger Group, and we also leverage our options in the international procurement market.

By working closely with our customers' development teams, our proficiency in components and assembly are incorporated into the project early on. This avoids iteration loops and reduces development costs.





## Product Process Design

In 2D and 3D designs, our development engineers implement the concepts and ideas that are developed jointly by our customers and our product specialists. Design evaluation is supported by FEM simulation and Rapid Prototyping.

In general, the make-or-buy decision occurs at this early stage in coordination with our manufacturing facilities - this promotes optimum, forward-looking production process at a competitive price.

## Compounding

We develop our own compounds. To do so, we maintain our own laboratory and a compounding facility for elastomeric materials where we develop formulas for special applications. These formulations are the basis for many of our products either produced in-house, or by external partners.

In addition, we also purchase compounds based on our formulations. This makes us flexible and independent on third-party compounds.

## Mold Design

Molds and products are designed simultaneously. If possible, prototype molds are designed to be converted directly to a production mold at a reasonable cost. This allows individual components to be optimized all the way up to the very last work step.



# Production

## Broad Production Portfolio



### International Manufacturing Sites

Our broad production portfolio can satisfy requirements in injection molding, stamping and profiles through inhouse production.

The production takes place at international locations in Germany, Poland, the USA and China.

### Cross-industry Solutions

We use our experience for cross-industry solutions. This not only improves our product development but also expands our service portfolio.

### Assembly Component

We combine products from our own manufacturing facilities with purchased parts to form complex assemblies. Our customers can optimize their own processing and procurement costs by out-sourcing this assembly work.

### Process and Product Quality

The companies in the Jäger Group have been certified according to DIN EN ISO 9001. We have certified our processes as environmentally compatible according to DIN ISO 14001. Diversity and quality setting standards.







**Hanover / Germany**

Production of molded and stamped parts, preassembly of components.



**La Porte / USA**

Production of single- and multicomponent profiles and single- and multicomponent molded parts.



**Gryfino / Poland**

Production of rubber molded parts.



**Shenzhen / PR China**

Production of molded parts.



# Supplier Management

## Intelligently Incorporating Suppliers into the Process



### Supplier Integration

Supplemental to our own manufacturing capabilities, we employ a high-quality, proven supplier management system that meets the requirements of the automotive industry.

Our suppliers are involved in our development process. They provide us with a continuous flow of new options for improving products and production. We help our partners optimize their internal processes, thereby lowering costs across the entire supply chain. Our approximately 400 supply partners are qualified and audited regularly. Also, our customers can integrate suppliers from their own supply chain into our supplier systems.

### Procurement Bundling

Our customers also profit from our procurement process since Jäger Gummi und Kunststoff can bundle their requirements, and processing costs. Administration and financing advantages result from our direct relations with preferred customer suppliers, supplemented by our own suppliers.

### Market Overview

Our procurement experts are thoroughly familiar with the market. A cost-efficient global supplier base and our close cooperation with purchasers enhances savings potential. This always involves a transparent dialog with the customer in order to guarantee the best part at the optimum price at the optimum manufacturing location.





## Strategic Partnership

We can support your company to concentrate on your main business, by saving resources mostly needed for more important tasks.

Outsourcing of procurement processes has a lot of quality advantages. Our position in the supply chain ensures that we are always work with partners whose technologies are State-of-the-art and guarantee access to most modern technologies. Thus, tasks can be done much more efficiently and in higher quality.

### A Selection of our Strategic Suppliers:



ContiTech



## Smart Order Processing

Our material planning and logistics chain reduces costs by bundling orders. These systems react quickly to specific customer requirements, changes in demand and market fluctuations. In addition, projects that involve a low number of parts, high degrees of manual work, specific sorting and assembly processes can be managed cost-effectively in collaboration with our supply partners. Targeted, active consultation services, lean process costs and timely delivery are the advantages that benefit our customers.

In addition to our product and manufacturing competencies, we also provide optimum services with regard to order, procurement and logistics management.



# Process optimization

## Order Management and Logistics - Perfectly Coordinated



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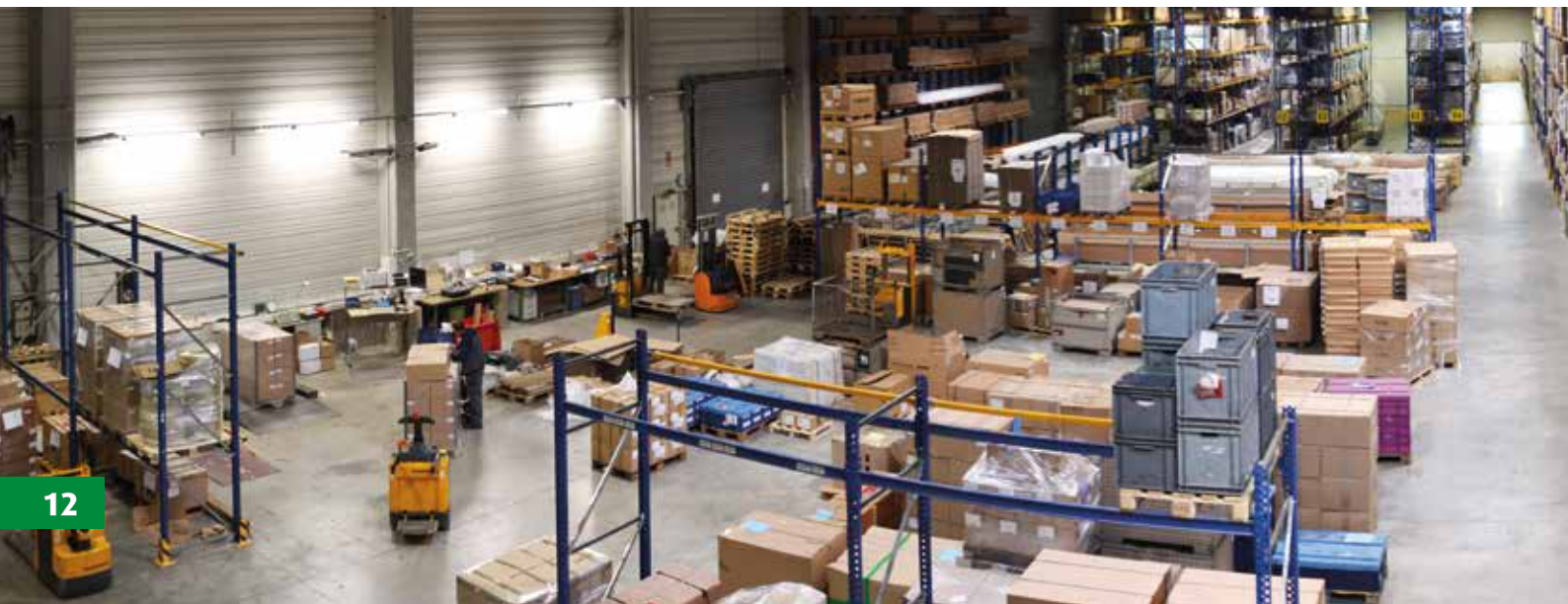
### eBusiness

The optimization of business processes with our partners is an important concern of Jäger Gummi und Kunststoff GmbH. It is not only important to keep the process reliability high at the same time we also want to reduce response times in the daily business.

We achieve these two seemingly conflicting objectives through the use of new technologies: EDI (Electronic Data Interchange) and eBusiness.

### Communication is Everything

Specially created systems and interfaces, as well as central contact on site, ensure that joint projects are actually implemented with our business partners in the reality. We can draw on existing EDI standards, which we can individualize extremely flexible and fast when needed. With such short and targeted projects, we save not only a lot of time together and achieve rapid and measurable success, they also keep the initial cost of an EDI connection as low as possible.





## Central Warehouse

A wide assortment, quick delivery times and expedited delivery in urgent cases make our customers independent and flexible at reduced capital commitment.

Our modern logistics center in Isernhagen, north of Hanover, with an area of 6,500 sqm provides the conditions for 8,500 monthly shipments. Due to our experience in the automotive industry extended logistics concepts can be implemented professionally.

## Our Logistics Service

- Optimization of freight and packaging costs
- Consignment warehouse
- Just-in-time
- Dynamic warehouse management for an efficient use of space
- Kanban strategies
- Preassembly with customer's labels
- Break-bulk point and cross docking
- Packaging planning and development
- Shipping management for drop shipments

## Authorized Economic Operator

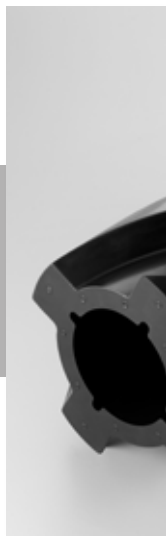


Our status as Authorized Economic Operator (AEO) guarantees a reliable and proven service and enable us to a simplified customs clearance.



# Customer Focus

## Cross-industry Solutions



### Mechanical and Plant Engineering

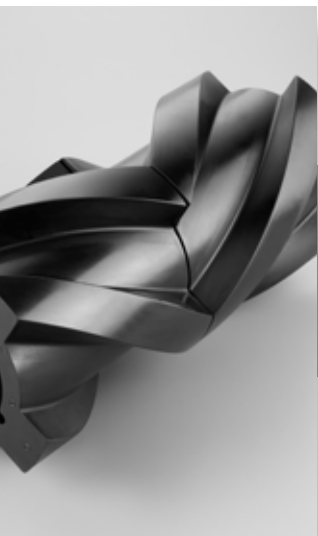
- Pump membranes
- Seals with various degrees of hardness
- Transport aids
- Assemblies made of several materials
- Cover gasket as composite component made of rubber and plastics



### Agricultural Engineering

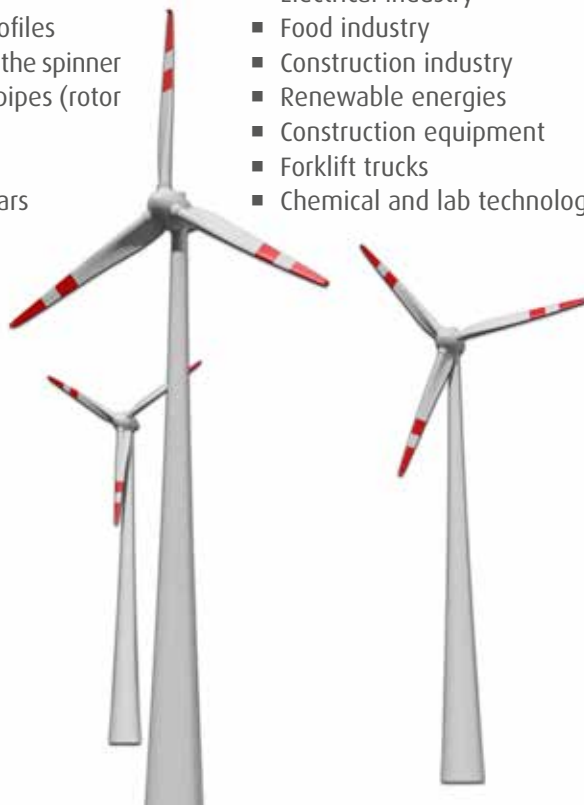
- Silentium Drive - the silent innovation for combines
- Slap tires consisting of tires and wheels
- Press rollers
- Sowing unit consisting of sowing pipe and sowing housing
- Sorting wheels made of high strength rubber
- Conveyor belts and crop conveyor belts
- Drive wheels and balling press rolls





## Wind Energy

- Reducing vibration
- Molded silicone parts and silicone profiles
- Seal profiles for casing the nacelle and the spinner
- Extrudates as flow medium / supply pipes (rotor blade production)
- Fluid engineering
- Seal profiles for Pitch- and Azimutgears
- Molded pipes made of plastics
- Transport protections



## ... and Solutions for Many Other Markets:

- Electrical industry
- Food industry
- Construction industry
- Renewable energies
- Construction equipment
- Forklift trucks
- Chemical and lab technology



# Molded Parts

## Rubber, Plastics and Metal Components



### Simultaneous Construction

Our strength is the production of molded parts made of rubber and plastics. By parallel development of product and tool we avoid default and sink points. Software for FEM calculations of strengths and simulation of the filling ensure the components' structural stability. Furthermore, we ensure that our customized solutions are efficiently and reliably produced.

### Molded Parts Made of Rubber

Elastomer components are influenced by changing media, temperature, mechanical wear or insolation. These factors restrict the component's useful life. Therefore, the Jaeger Group of Companies produces own materials for more than 70 years. In close cooperation with our customers we establish specification sheets/specification manuals/specifications to be met and implement these requirements in custom-made recipes. For that reason, we carry out mechanical, dynamical, vulcanization and processing tests as well as material and damage analyses.

- Rubber molded parts
- Rubber to metal composites
- Sponge rubber molded parts

### Production Technology

- Injection-Molding
- Compression- and Transfer-Molding
- Vulcanization in autoclaves







## Molded Parts Made of Plastics

Molded parts made of plastic isolate, decorate, connect and stiffen. Due to their specific properties like low weight, good corrosion resistance, high chemical resistance and electrically adjustable features plastic molded parts increasingly replace components made of metallic materials. In addition, they offer a great range of shape. By adding further ingredients to the plastic matrix its material properties can intentionally be modified:

- Rubber-like using elastomer compounds (TPE)
- Electrically conductive by adding metal fillings or other compounds
- Mechanically reinforced by adding glass fibre, glass balls, etc.

### Production Technology

- Injection molding
- Blow molding
- Foaming
- Thermoforming
- Machining

## Rubber-plastics Composites

Due to cost, weight and corrosion reduction highly temperature resistant thermoplastics increasingly replace metal. Chemically produced elastomer to thermoplastics composites are the Jaeger Group's extraordinary core competence. We are able to compound nearly all types of elastomers directly to thermoplastic materials. Without a prior primer, the elastic component is injected directly onto the stable thermoplastic body. In that way, additional functions can be integrated into the product which our customers benefit from:

- Very flexible and filigree parts become stable and functionally reliable
- Tightly bonded seals are leak free and need less space
- Lower quality cost and reworking due to reduced assembly effort
- Substitution of metal reduces corrosion and weight



# Profiles

## Extruded Profiles in Rubber and Plastics



### Custom-made

Jäger Gummi und Kunststoff GmbH develops custom-made geometries made of rubber, plastics and TPE:

- Solid profiles made of one material
- Duplex profiles made of several materials and of different hardness
- Sponge or soft rubber profiles
- Metal clamping or edge protection profiles
- Laminated or flocked profiles

Dynamically stressed gaskets we calculate the necessary pressure forces and selectively adjust them by different material combinations (i.e. Duplex), cavities or foam structures.

### Refining

Profiles are produced by endless extrusion. In order to improve the handling and the further processing we offer various possibilities of refinement:

- Easier handling of small elements through kiss cutting up to the liner and delivery on spools.
- Clear labeling of the components through multi-color liner and printing.
- Partial notch and exact cutting to length to realize tight bending of circumferential seals.
- Welding of thermoplastic and TPE profiles to molded parts.
- Bonding with cyanoacrylate.
- Heat vulcanization of edges to molded parts.
- Functional surfaces through flocking and anti-friction coating.



## Laminating Bonding Systems

In order to simplify assembling processes for our customers we can equip profiles with simple, self-adhesive assembly aids. These cold applied adhesive tapes serve, for example, as transport lock. However, they are no lasting fixation. By using with heat activated adhesive systems profiles can be fastened permanently and process reliable on request. Thus, grooves are not necessary.

## Production Technology

### Rubber

- Conventional autoclave manufacturing and curing
- Salt bath vulcanization
- Ultra high frequency vulcanization
- IR-shock vulcanization

### Plastics

- Extrusion
- Co-Extrusion
- Tri-Extrusion



# Assembled Hoses

## Hose Technology, Fittings and Accessories



### Broad Standard Range

Hoses have a complex technical structure that consists of outer layer, stiffeners and inner core. Our range of industrial hoses extends from simple water hoses to chemical hoses and metal-covered high pressure hoses. Cooperating with our customers we develop individual hoses and hose assemblies for:

- Electrode cooling for electric arc furnaces
- Heated hoses for two-component adhesives
- Sterile hoses for the pharmaceutical industry
- Heat protection hoses for electrical and hydraulic lines
- Hose assemblies with leak free and non-drip couplings

### Various Connecting Elements

Flexible hoses only work correctly in combination with the proper fitting. We give advice to our customers concerning the appropriate combination of connecting parts, flanges and blocking elements. Our wide range of fittings offers the right solution for the respective usage purpose.

### Tailor-made Hose Assemblies

Assembling of hoses and fittings into a functional unit that matches the application: This is our strength. We provide all required connecting parts, cut hoses to suitable length and install it to a complete line system. According to customer specifications we individually check and document the operating pressure of every hose assembly.





## Mandrel Heated Molded Hoses

Tight bending radii and limited space require pre-bent molded hoses which are fabricated by heated mandrels. Upon customer request we develop hoses of every length and diameter. Via injection molding turn-offs are vulcanized to molded part.

### PTFE-Hoses

With our modern manufacturing facilities we produce PTFE-hoses in diverse variants. Besides smooth and corrugated hose assemblies we also offer hose assemblies with cores that cover the fitting (shaped PTFE-flare for standard sealings). Special solutions for vacuum applications, electrically conducting versions and antistatic PTFE-cores build our core product range in the branches medical technology, chemical and food industry.

## Production Technology

### Rubber

- Continuous extrusion without mandrels
- Mandrel extrusion
- Free-hand manufacturing
- Molding
- Winding mandrel manufacturing

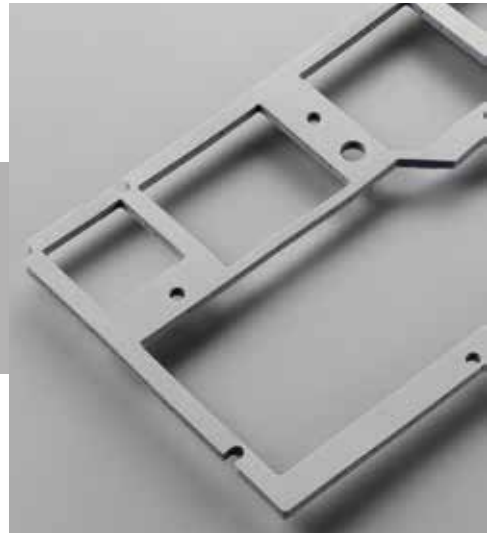
### Plastics

- Extrusion
- Winding mandrel manufacturing



# Punched Parts and Assembling

Manual Tailor-made and Fully Automated



## Processing of Semi-finished Products

Our wide range of plats and mats include all usual qualities of rubber and plastics as well as temperature resistant sealing and isolation materials, which could meet certain requirements concerning:

- Oil, acid and alkaline resistance
- Reaction in high and low temperatures
- UV resistance
- Slip resistance
- Flammability
- Gas emission performance

Besides standardized designs (striae, naps) we also offer customized surface patterns. In addition to massive materials we use porous materials like cellular rubber, sponge rubber, polyethylene foam and foamed silicone for applications in the field of seals.

## Refining

In order to simplify the components' handling and to reduce assembling processes we refine our products by:

- Lamination of foils
- Lamination of adhesive systems
- Perforating multi-layer release tongues
- Printing
- Acquisition of assembly processes

## Materials

- Plats made of every usual rubber compounds and semi-finished plastics products
- Isolation mats
- Composites and non-metal materials
- High temperature materials
- Design mats etc.





## Production Technology

Our production plants are highly mated and constructed for producing medium size series:

- Punching up to 200t pressure
- Water jet cutting
- Strip cutting
- Cutting off rolls and tapes
- Sawing and cutting
- Plotting

The numerous different materials and the sealings' great variety in dimension and quantity require specific production facilities. Therefore, we purposefully cooperate with strategic supplying partners, who complement our own production in projects with small numbers and a high share of manual work.

## Customized Individual Solutions

Based on standardized elements our experts and engineers customize assemblies and individual solutions, which are implemented with the following processes:

- Separating
- Cutting to length
- Punching
- Notch
- Sewing
- Merging
- Adhesion
- Edge vulcanization
- Mirror welding
- Refining
- Labeling
- Laminating
- Flocking
- Assembly
- Testing
- Documentation





### **Jäger Gummi und Kunststoff GmbH**

Bissendorfer Str. 6

30625 Hannover

Germany

+49 511 5358-0

+49 511 553394

info@jaeger-gk.de

www.jaeger-gk.de



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