



EJOT® INSERTMOLDING

Development & production of functional plastic parts with integrated contacts



... functional plastic parts



Globally, the EJOT group of companies specialises in advanced fastening and forming technology. Historically, EJOT customers are mainly from the automotive and supply chain industry, telecommunications and consumer electronics in addition to the building and construction industry.

EJOT's Industrial Division offers a wide range of innovative fastening elements, above all self-tapping screws for metals and plastic materials, multifunctional cold-formed components, individual assembly groups made of metal and plastic materials, engineered plastic components as well as special fastening solutions.

Working alongside our customers, EJOT develops individual solutions for their applications. In the field of functional plastic parts with integrated contacts, the INSERTMOLDING business unit provides design engineering of the parts, advice with regards to materials and surface coating, design of the stamping strips, in-house tool shop and automation lines, for highly complex plastic injection molding processes.

EJOT - with over 90 years of company history and about 3,500 employees in more than 30 subsidiaries, assures quick global availability of our products and fast, personal contact with our customers.

Functional plastic parts

EJOT® INSERTMOLDING

The intelligent solution

The INSERTMOLDING business unit develops and manufactures high-precision metal-plastic composite parts. In the course of global project management, customers are offered an extensive range of services ranging from the product development process to the start of production as well as the entire value-added process. Decades of experience, comprehensive know-how as a specialist in cold forming, state-of-the-art plant engineering and a demand for perfection are the distinguishing features of the INSERTMOLDING business unit as a competent partner in the field of hybrid parts.

Design Consultation

- Molded-part design
- Feasibility studies
- Injection molding simulation
- Finite element analysis
- Plastics and process oriented design of the complete part and the inserts
- Component design optimised for material and weight
- Creative and intelligent integration of functions for innovative solutions

Engineered Plastic Components

- Integration of various inserts into the plastic part without pre-molding
- Fully-automated direct insertion and insert molding of the stamping part with flexible automation technology
- Individual lean production system, tailored to the customer needs

Raw material and plating technology

- Advice with regards to material selection
- Wide selection of engineering thermoplastics e.g. PPS GF or PBT GF, also modified or with special features
- Platings of the inserts: Au, Ag, Sn, Ni/NiP (bondable), bondable AISi1 roll bonded or electro plated bond gold

Stamping / bending technology

- "Valuable Engineering" through economic design of the stamping strip

Component assembly

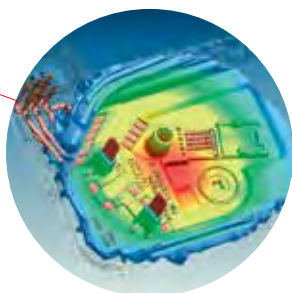
- Fully automated assembly of additional - components, e.g. seals, membranes, bushings
- Ultrasonic welding

Automation

- In-line production cells
- Flexible systems based on global quality and process standards
- 100 % testing

In-house tooling shop

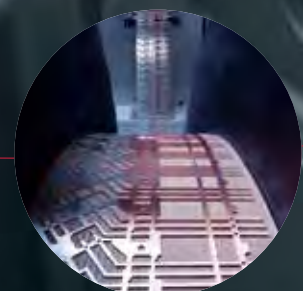
- In-house mold design, construction and maintenance



Design Consultation



Engineered Plastic Components



Raw material and plating technology



Stamping / bending technology



Component assembly



Automation



In-house tooling shop

High-precision hybrid parts

EJOT® Covers and Housings

Direct injection molding of metal contacts

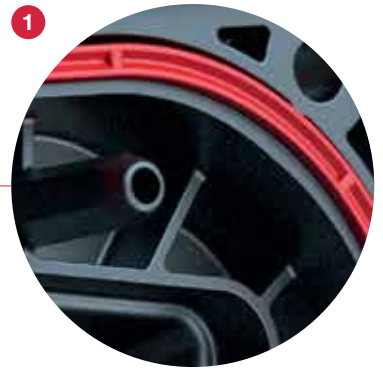
Hybrid parts made by EJOT meet the most stringent requirements with regard to accuracy to size, dimensional stability, load bearing capacity, tightness and appearance - even in constantly changing and demanding fields of application.

With state-of-the-art engineering and many years of experience, EJOT manufactures precise assemblies for the direct injection molding of metal contacts.

Characteristics at a glance

- High performance thermoplastic material
- Single step production process without pre-molding
- Process integrated assembly
- Inserts with standard plating or bondable surface
- In-house tooling and automation engineering (international)





Inserts / assembly parts

- Seals
- Bushings, pin (insert molded or assembled)
- Air inlet valve
- Membranes
- Contact elements



Contacts

- E.g. CuSn6, CuZn
- Also with press-fit zones

Plating

- E.g. Au, Ag, Sn, bondable



Identification

- Date / Time
- Customer number, logo
- Material description
- Data Matrix Code, laser marking

For challenging environmental conditions

EJOT® Sensor Housings Tight tolerances in the engine compartment

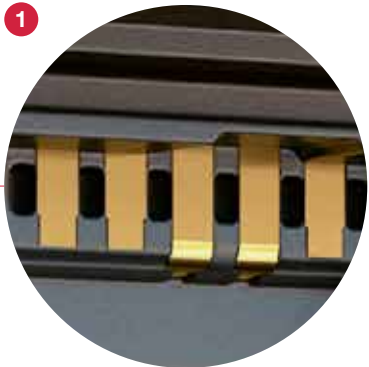
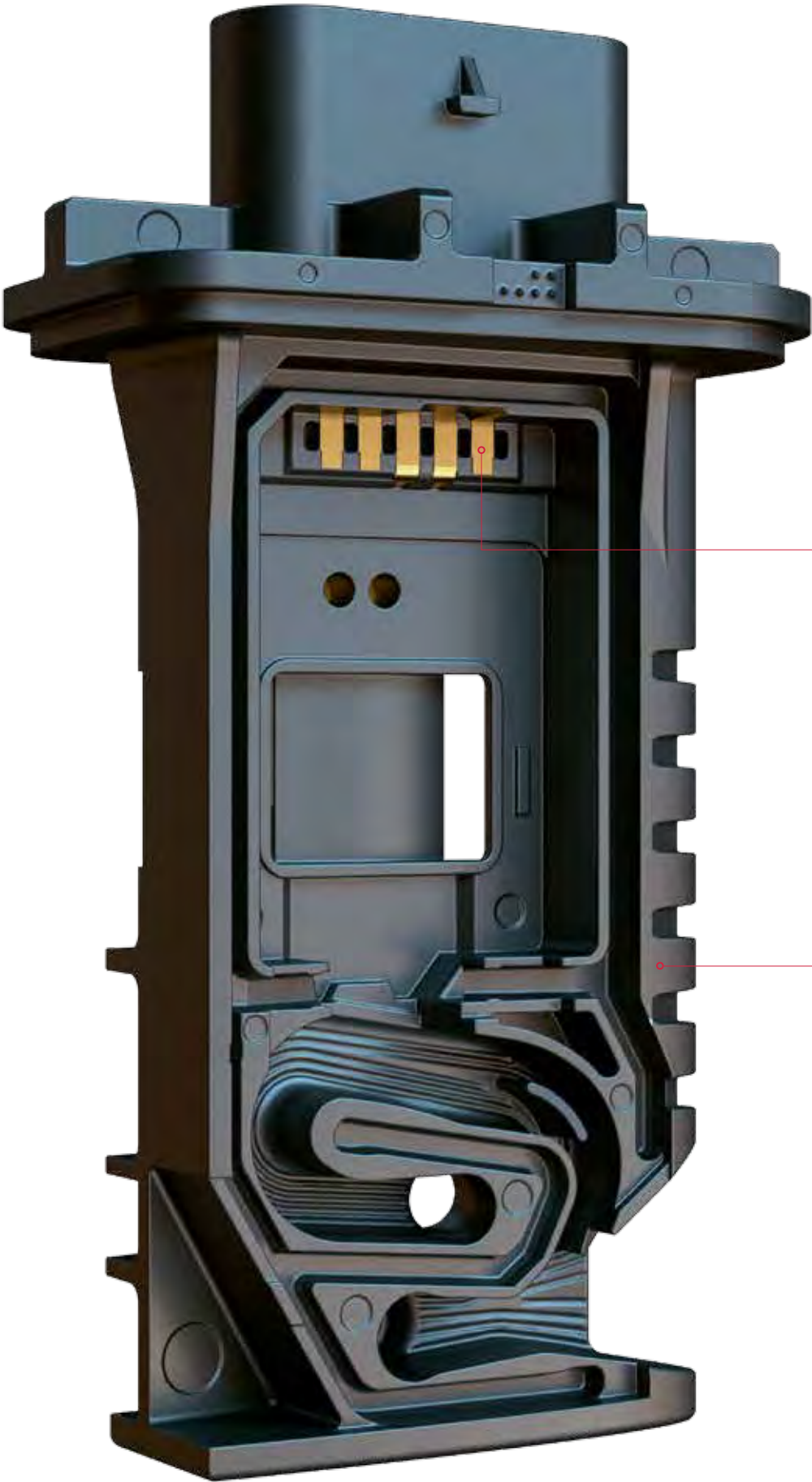
Because of the stressful environment, the engine compartment is subject to the highest demands on all installed components. Fluctuating temperatures and pressures, as well as different humidity and density make it difficult to maintain tight tolerances.

EJOT sensor housings fulfill the highest requirements with regard to their functionality using optimised mold geometries, single-stage manufacturing processes and high-quality materials.

Characteristics at a glance

- Single step production process without pre-molding
- Process integrated assembly
- Surface: AISi1 bondable, roll-bonded or wire bondable gold





Contacts
• E.g. CuSn6

Surfaces
• Bondable



Material
• All engineering thermoplastics,
e.g. PBT-GF30



Assembly of additional components
(membranes, bushings, seals)

100 % tests for leaks, electronic
continuity, dimensional accuracy,
etc.

Fully-automated packaging in
customer-specific trays



Single step production process
without pre-molding

Stamping, bending, loading
of the contacts and inserts

Design engineering and in-house tooling shop

Functional components require the highest tool precision

Design engineering and simulation

1

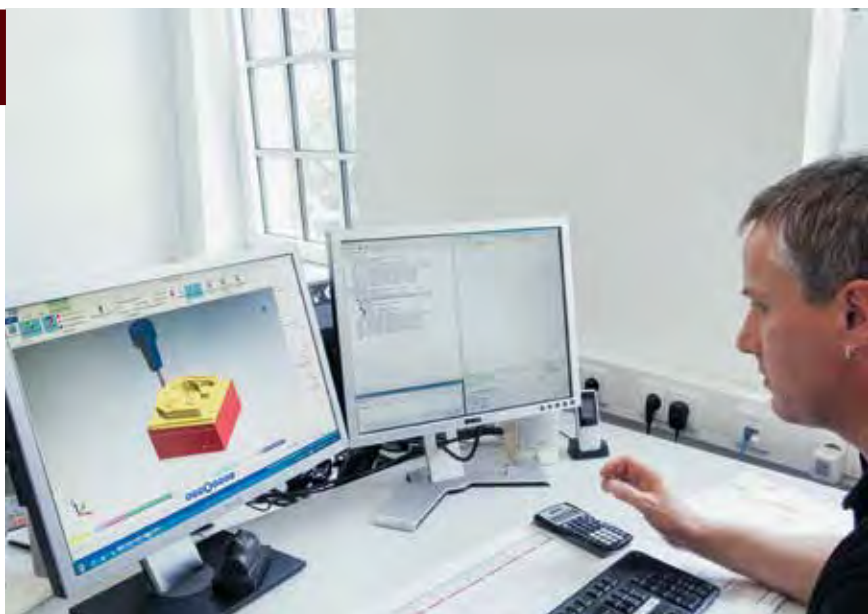
The business unit INSERTMOLDING has its own tool-shop including design engineering. The latest CAD / CAM software is used. With the in-house bundling of these tasks the design of the component and the inserts are guaranteed to be aligned with the material and the process.

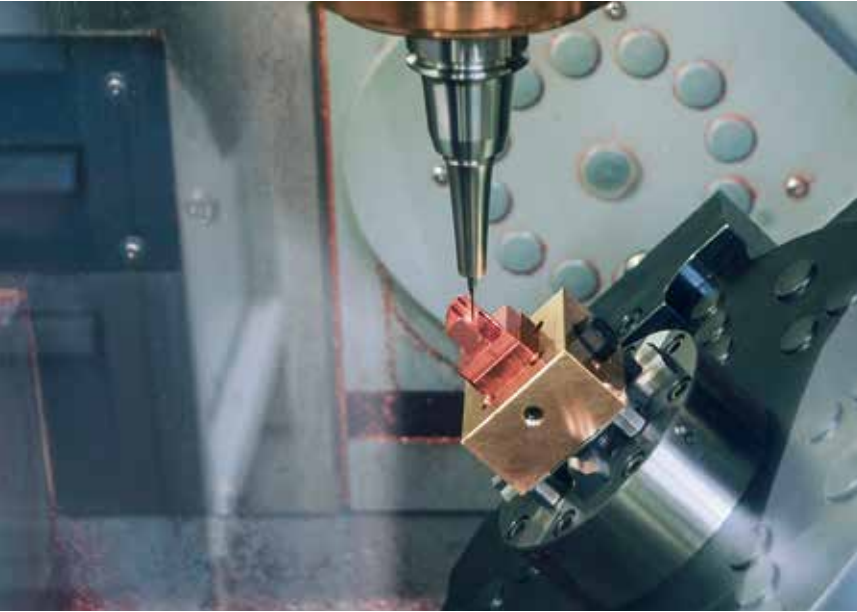


Manufacturing Execution System (MES)

2

A key component for automated workflows is the implementation of process-safe data management. This takes place from the NC programming, with the automation of components up to the measurement of the quality by means of an innovative process control system.

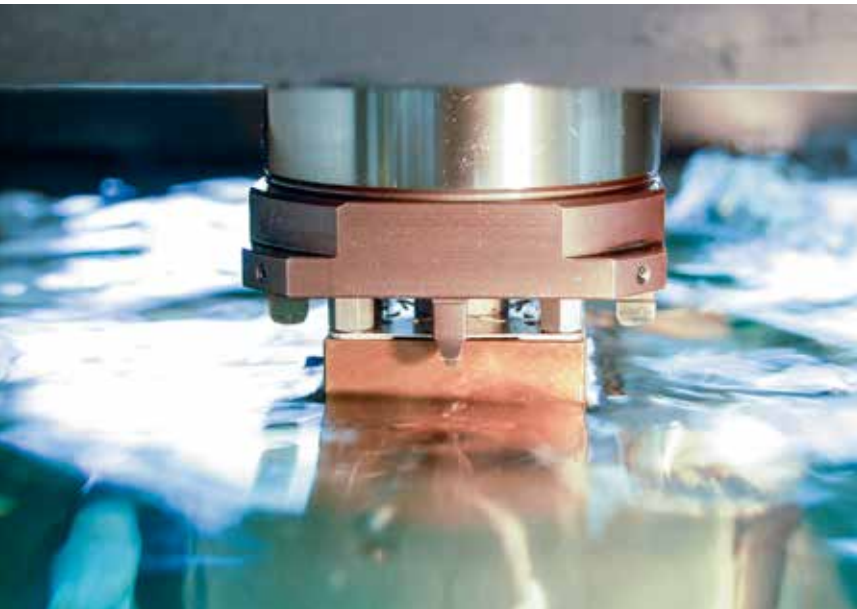




High-speed milling

Electrode production in EJOT's own tool shop is carried out on high-speed milling machines. For graphite and copper, these 5-axis milling machines can be used automatically. The high efficiency and precision of the process is ensured by an integrated clamping and pallet system.

3



Electric discharge machining and wire electric discharge machining

Robotic machine systems are used for EDM. This enables the fully automatic processing of up to 7 workpieces and over 150 electrodes. For wire EDM, intelligent clamping systems ensure maximum reproducibility.

4



Tool assembly

The assembly of new tools and the maintenance of the tools is carried-out by highly-qualified and well-trained tool makers. Ultrasonic cleaning and dry ice cleaning are available for the maintenance and cleaning of the tools.

5



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Service and support

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Project Management

From the first product idea up to series production - the EJOT INSERTMOLDING specialists fulfill demanding and complex tasks for the production of functional plastic parts. As a development partner for component and process development, the range of services includes, in addition to the support of component design, material selection, development and procurement of components, as well as highly complex plastic injection molding processes.



Global alignment

Through global standards in engineering, plant conception, quality and processes, all services are also available globally at the same high quality level. Standardized plant concepts ensure both process transfers and flexibility as well as compressed reaction times. In addition, local delivery is also possible, eliminating transport, customs and other processing costs. Local-content regulations can be adhered to.



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Logistics

It is our aim to keep procurement and warehousing costs as low as possible by simultaneously offering product availability and quality. With regards to simplified procurement processes, EJOT offers a variety of cost reducing procedures and services. State-of-the-art logistics processes enable the high availability of the products and form the basis for secure processes, a process-optimised value chain as well as an efficient infrastructure. The INSERTMOLDING business unit also supports the implementation and design of packaging and logistics systems. In addition, complete logistics are carried out to the line of the customer (ship-to-line) - also with customer-specific trays for rational further processing.



Reliability

Safety-relevant aspects are becoming increasingly important. As a partner in the field of insert and plastic technology, we actively contribute to your success. Risk avoiding and preventing measures are therefore of enormous importance. For example in production, tools are stored in separate safety areas and sprinkler systems always meet the latest technical standards.

Global plant concepts allow flexible production of your parts at different locations - with consistent process, quality and performance standards.



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