

EMKA PRECISION CASTING

Production competence from one source



About EMKA Production

EMKA Production is the business unit of the EMKA Group that was decoupled from the core business of the fitting parts sector at the beginning of 2021 in order to operate on the market with a clear profile as a "partner to industry". Customers from a wide range of industries thus have the opportunity to use EMKA's entire manufacturing and service spectrum for their products.

EMKA has 10 own production sites worldwide in Germany, Spain, France, England, Bosnia, Serbia, China and recently also in India. In 2020, these plants were active throughout, so that as a supplier - also for system-relevant industries - we were able to ensure at all times that there were no supply bottlenecks for our customers at any time. EMKA also manufactures products from various materials, whether as individual components or as ready-assembled and in-house tested assemblies.

EMKA Production does not see itself as a contract manufacturer, but rather as a process partner. Our consulting services begin with feasibility studies and the joint development of moulds, tools as well as fixtures for your subsequent production.

The individual parts and / or assemblies manufactured for you are then tested and certified in our accredited test laboratory in accordance with your requirements. For worldwide (JIT) delivery, we are available for packaging and logistics concepts including customer warehouses as well as for seamless spare parts service.





Henriville, France



Birmingham, UK



Arnedo, Spain



Goražde (Plant 1), Bosnia-Herzegovina



Goražde (Plant 2), Bosnia-Herzegovina

- Company headquarters
- Production site
- Subsidiary
- Agency



Company headquarters Velbert, Germany



Bhilai, India



Wuppertal, Germany



Tianjin, China

EMKA worldwide

2,100 employees

Own production at 10 international locations

Represented in 55 countries worldwide

More than 16,000 catalog products

More than 14,000 special products

More than 36,000 customers worldwide



Mionica, Serbia - [EMKA precision casting](#)

Precision casting by EMKA Production

Facts EMKA precision casting

Since 2015 part of the EMKA Group

Production in Mionica, Serbia
(80 km away from Belgrade)

192 employees

10,479 m² area under roof

4,000,000 parts per year

400 t of material per year

Certified according to ISO 9001:2015
and IATF 16949:2016

Services

Application consulting

Project planning

Development and Engineering

Specialised design centre

Series production

Surface treatment

Post-processing

Certification in the EMKA test laboratory

Logistics





Technical details

Part weight from 0.5 g - 10 kg

Component lengths up to 250 mm

Steel and stainless steel
in various qualities and alloys

Heat treatment of steel

- Hardening / Case hardening
- Tempering

Tolerances according to VDG P690 D2

Surface quality up to N8 ($R_z = 16 - 25 \mu\text{m}$)
possible without reworking

Surface treatment

- Sand blasting
- Pickling
- Passivating
- Electropolishing
- Grinding

Post-processing

- Milling
- CNC turning
- Eroding

Precision casting technology

1. Wax injection process

The wax patterns (replicas) are made using AL, brass or steel tools and form a positive model of the casting to be produced.

2. Create wax tree

The wax patterns are attached to a central casting barrel and assembled into a complete casting cluster (also called a wax tree).

3. Creating the mould

The actual casting mould is created by alternately immersing the casting cluster in a ceramic slurry and in fine sand. With this process, up to 9 layers are built up, which in the end represents the actual mould.

4. Wax removal

Once the ceramic mould has dried, a steam autoclave (150°C hot steam) is used to melt out the wax. In the further course, the mould must be fired at 900 °C to 1,200 °C until complete curing.

5. Casting

The actual casting process takes place directly into the still-hot mold, where the molten metal can flow into the cavities created by the wax pattern.

6. Demolition of the mould (ceramic tree)

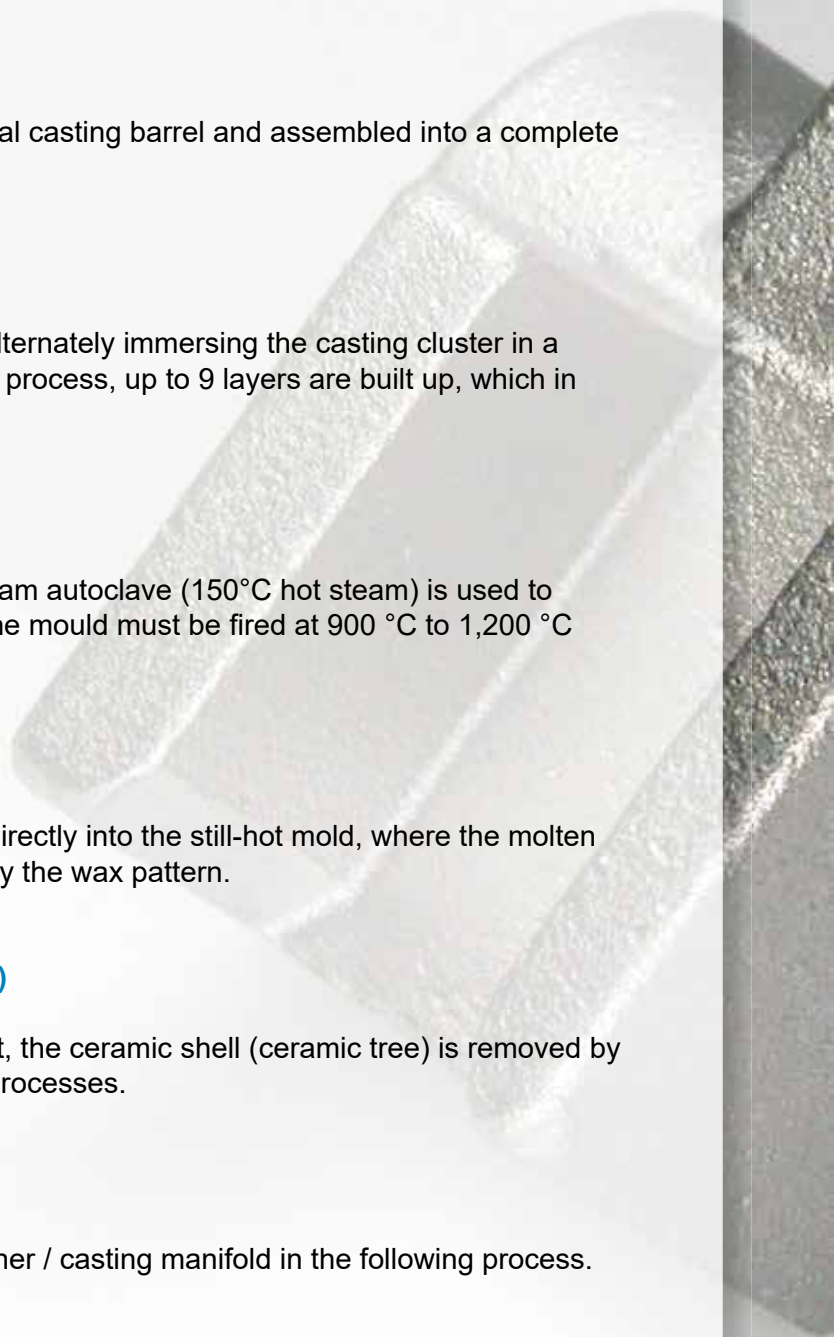
After solidification and cooling of the melt, the ceramic shell (ceramic tree) is removed by means of vibration or other mechanical processes.

7. Separating the individual parts

The castings are separated from the runner / casting manifold in the following process.

8. Finished cast parts

Depending on the customer's requirements, further work steps can follow, such as heat treatment, surface finish and mechanical finishing (such as insertion of threads, etc.).





Why precision casting?

High dimensional accuracy

Gute Oberflächenqualität

Extreme resistance
(e.g. against corrosion)

Complex, sophisticated shapes can be
realised

Low wall thicknesses possible

Flexibility regarding size and quantity
of parts

Wide variety of materials

Less expensive than turned and milled
parts made of solid material



Quality assurance

Our chemistry and metrology laboratory is equipped with modern measuring and testing equipment, thus enabling comprehensive and complete control of castings in terms of chemical composition, homogeneity structure, mechanical properties and dimensional accuracy.

These analyses are ensured by spectro-equipment, X-ray, penetrant, optical microscope, optical comparators, various measuring instruments and other necessary testing devices.

EMKA precision casting is certified according to ISO 9001:2015 und IATF 16949:2016.

Partner of the industry

Automotive industry

Agricultural machines

Hydraulic and pneumatics industry

Electrical industry for electric motors and
electrical systems

Machine tools and accessories

Medical technology e.g. orthopedic devices

Metalworking industry

Fitting parts industry

and many more



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