

EMKA MOULD + SERIES

Mould making and initial sample production from one source
with optional series production

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Initial sample production

at the same location as tool production
at EMKA on state-of-the-art machines
for zinc, plastic and aluminum production

Test and measurement protocols

by EMKA quality assurance with
the most modern measuring technologies
(digital optical projector, etc.)



Initial sample and tool approval by the customer

Complete documentation
of the entire manufacturing process
including all production parameters



Assembly at EMKA

of individual parts to finished assemblies



Series production at EMKA

Plastic injection moulding,
aluminium and zinc die casting,
stamping, bending and forming technology
as well as finishing

**Series production
at customer**

One of the top 3 mould makers in Europe!

As a manufacturer and solution provider of closure systems for switch and control cabinets, EMKA has long since made a name for itself - the company is the world market leader in these areas.

Since the acquisition of a mould making company in Goražde / Bosnia-Herzegovina, EMKA is now also one of the largest mould makers in Europe. Experienced engineers for development, design and CNC programming produce up to 900 moulds per year on site for plastic injection moulding, zinc and aluminium die casting parts.

Facts

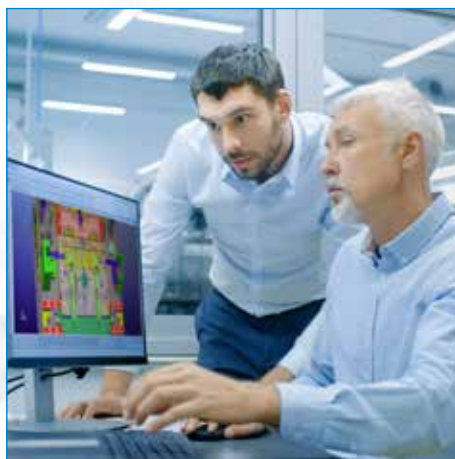
150 employees in mould making
55,000 m² area under roof
46 engineers
15 constructors
14 developers
95 high-quality machines in mould making
Production of up to 900 moulds per year

Development and engineering

3D-CAD
Filling simulations for various materials
Stress-strain analysis by means
of finite element method
CAE

Service overview

Moulds for plastic injection moulding,
zinc and aluminium die-casting
Multi-component moulds (2K)
Moulds for IML foils
Moulds for insert injection moulding
Punch deburring
Pre-series moulds for all materials
Family tools for small quantities
Guaranteed service life
Precision casting tools



Machinery in mould making

Equipment in mould making

34 machining centres, several with 5 axes

7 lathes

5 surface grinding machines

22 die-sinking EDM machines

7 wire EDM machines

8 HSC machines for the production of graphite electrodes

12 standing drill presses

Manufacturers

 **LOKUMA**

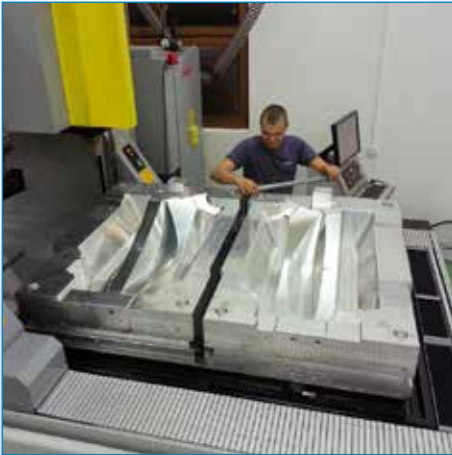
 **MIKRON®**

DECKEL MAHO

 **MAKINO**

OPS  **INGERSOLL**
Fly with the eagle!

 **HAAS**
Machine Automation Solutions



Initial sample production and testing at EMKA

The initial sample production takes place directly at EMKA on one of the many modern production machines, which are also used for the optional series production.

The tests of the initial sample are carried out with the aid of state-of-the-art equipment by trained quality assurance staff. In this way, EMKA guarantees quality down to the smallest detail. Through many years of experience, EMKA ensures that mould and machine form a perfect interplay and that all parameters are coordinated with each other. The entire process is carefully documented so that all the settings required for series production are directly available for the customer.

After the customer has approved the mould, series production can begin - either at the customer's or directly at EMKA on site!

Test methods

Portable coordinate measuring machine

Coordinate measuring machine

Image dimension measurement system

3D scanner

Pin gages and gauge blocks

Height measuring device

Your benefits

Omission of transport loops

Optimal settings for downstream series production

Many years of know-how

Complete documentation including all production parameters

Series production

- Zinc die casting
- Plastic injection moulding
- Aluminium die casting
- Stamping / Bending

Finishing

- Cutting
- Frictional grinding
- Powder coating
- Electroplating
- PUR foam technology
- Assembly

Start of initial sample production:
The produced mould is adjusted

Production of the first sample on a modern production machine **at EMKA**



The initial sample is taken off the machine and then subjected to extensive tests



Deviations are precisely documented in the protocol

| Nr. | Anforderung / Spezifikation | IST-Wert | Spezifikation erfüllt | | Messmittel |
|-----|-----------------------------|----------|-----------------------|------|---------------------|
| | | | Ja | Nein | |
| 1 | 8,5+0,20-0,35 | 8,2 | ✓ | | Digitaler Projektor |
| 2 | 4,4+0,3-0,2 | 4,8 | | ✗ | Messscheiber |
| 3 | 36 | 36,2 | ✓ | | Digitaler Projektor |
| 4 | 20+0,25-0,20 | 20,05 | ✓ | | Digitaler Projektor |
| 5 | R5 | 5 | ✓ | | Digitaler Projektor |
| 6 | 8,10+0,00-0,08 | 8,06 | ✓ | | Messscheiber |
| 7 | Ø4,2+0,00-0,10 | 4,16 | ✓ | | Profilstift |
| 8 | 6+0,10-0,10 | 5,96 | ✓ | | Messscheiber |
| 9 | 2,4+0,00-0,2 | 2,4 | ✓ | | Höhenmessgerät |
| 10 | R0,5 | 0,4 | ✓ | | Digitaler Projektor |
| 11 | 6,4+0,20-0,35 | 6,45 | ✓ | | Digitaler Projektor |
| 12 | 3,2+0,2-0,1 | 3,58 | | ✗ | Messscheiber |
| 13 | 42 | 42,1 | ✓ | | Digitaler Projektor |
| 14 | 24+0,25-0,20 | 24,3 | | ✗ | Digitaler Projektor |
| 15 | R4 | 4 | ✓ | | Digitaler Projektor |
| 16 | 9,10+0,00-0,08 | 9,06 | ✓ | | Messscheiber |

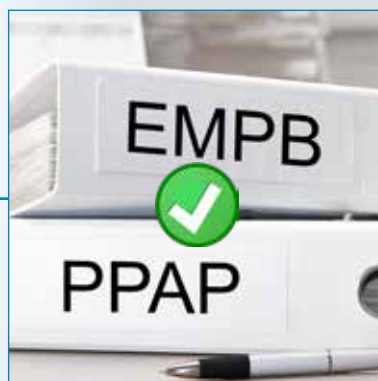


Testings of the initial sample by the **EMKA quality assurance**

Corrections and retests are carried out **directly by EMKA**

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| 13 | 42 | 42,1 | ✓ | | Digitaler Projektor |
| 14 | 24+0,25-0,20 | 24,1 | ✓ | | Digitaler Projektor |
| 15 | R4 | 4 | ✓ | | Digitaler Projektor |
| 16 | 9,10+0,00-0,08 | 9,06 | ✓ | | Messscheiber |

When all tests have been successfully passed...



...the mould and the initial sample are approved by the customer.

Series production at customer

Series production at EMKA



Plastic injection moulding

powered by

ARBURG



Aluminium die casting

powered by

FRECH



Zinc die casting

powered by **FRECH**



Precision casting



Certification in the accredited EMKA test laboratory

The scope of DIN EN ISO/IEC 17025:2018-03 covers a wide range of simulations and test methods performed by the EMKA test laboratory team.

This confirms:

The EMKA test laboratory fulfills not only the requirements of the quality management system but also all technical prerequisites. It also has the high level of technical competence to perform independent tests in accordance with the current standard.

Due to the affiliation of the DAkkS to the International Laboratory Accreditation Cooperation (ILAC), the accreditation is also internationally recognized.



Testing options

Climate and humidity test

IP protection class test

Endurance and lifetime test

IK test

Vibration test system

Corrosion test

Tensile-compressive strength test

Torque measurement

Hardness test

Spectral analysis

Permanent quality assurance in the production process

Certificates

ISO 9001:2015

ISO 14001:2015

ISO/TS 16949:2009

ISO 50001:2011



References

Rittal

Fischer

Hella

Schneider Electric

Hymer

Morello

Aston Martin

Ferrari

Porsche

BMW

Dometic

Warehouse and logistics worldwide

- Company headquarters
- Production site with warehouse
- Subsidiary with warehouse
- Agency



Henriville, France



Birmingham, UK



Arnedo, Spain



Goražde (Plant 1), Bosnia-Herzegovina



Goražde (Plant 2), Bosnia-Herzegovina



Company headquarters Velbert, Germany



Wuppertal, Germany



Tianjin, China



Mionica, Serbia



Bhilai, India



Bandung, Indonesia

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