SERVICE SHEET · PATTERN SHOP

# Patternmaking and prototyping of foundry molds

We design and manufacture casting patterns, core boxes, and molds for permanent mold and sand casting – using CAD/CAM, CNC machines and 3D printing. You can verify the prototype before we start series production. We have been making foundry patterns since 1950.

**since 1950**
tradition of foundry patternmaking

**steel · wood · resin**
pattern materials – from prototype to large series

**CAD/CAM**
design with casting process simulation

**days – weeks**
lead time: from a few days to several weeks

## 01 · Scope of service

| | |
|---|---|
| **We produce** | master patterns, production patterns and simplified patterns, core boxes, molding tools, permanent molds and sand molds; high-pressure die casting molds made of tool steel are produced in the tooling department |
| **Pattern materials** | steel – high-volume production; wood and resin – shorter runs and prototypes |
| **Technologies** | CAD/CAM with casting simulation, CNC machining, 3D printing, manual patternmaking; 3D scanning and design |
| **Prototypes** | trial patterns and molds for verifying shape and function before series production |
| **Lead time** | from a few days to several weeks – depending on whether a prototype pattern, sand mold or permanent mold is being made |
| **Organization** | pattern shop, tooling department, foundry and CNC machining department at one site; for some projects we work with trusted partners |

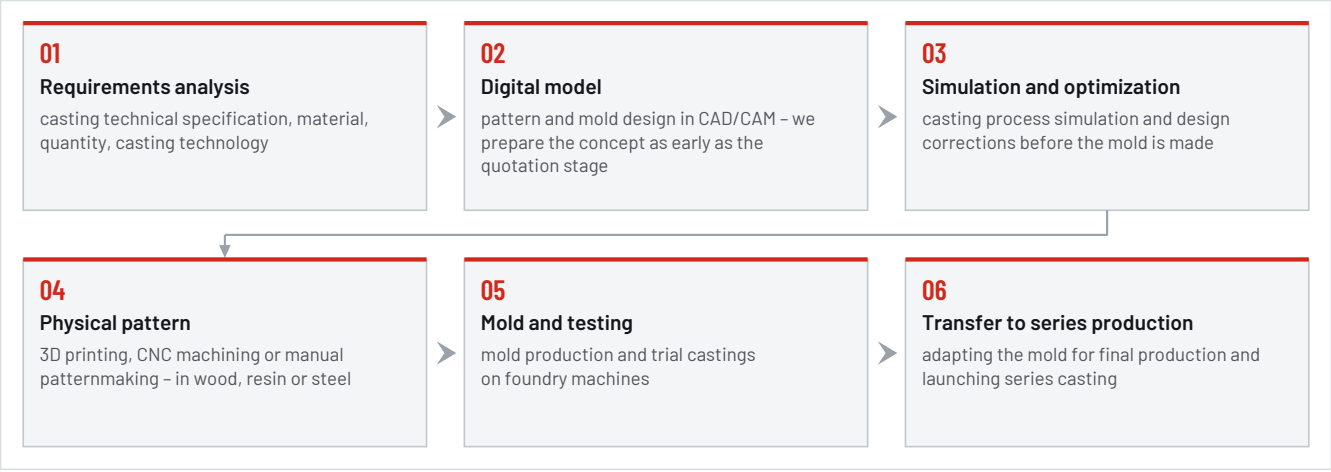


**Fig. 1.** How a foundry mold is made – stages of work in the pattern shop.

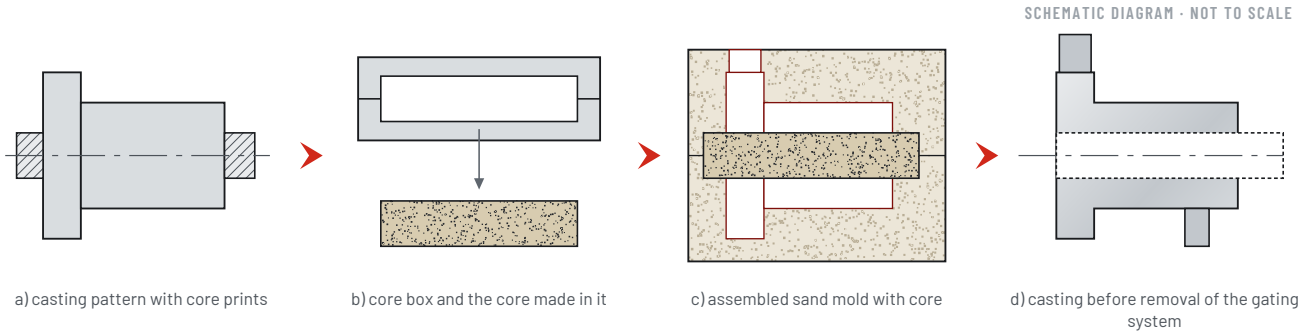


**Fig. 2.** Role of the pattern and core box: pattern with core prints, core made in the core box, sand mold with core, and finished casting.

## 02 · Molds for every technology

| Technology | Mold or tooling | Material and manufacture |
|---|---|---|
| **Permanent mold casting** | permanent molds for series production; metal or hardened cores | cast iron or structural steel; CAD and CNC machining |
| **Sand casting** | patterns and core boxes, molding tools | wood, resin or steel; pattern 3D printed, CNC machined or made by hand |
| **High-pressure die casting** | die casting molds with conformal cooling channels and metal cores | tool steel; CAD/CAM with melt flow simulation |

## 03 · 3D printing in prototyping

3D printing makes it possible to produce test patterns quickly and cost-effectively, including geometries that are difficult to achieve with other methods. We design, adapt and modify 3D models to meet production requirements. Finished prototypes serve as trial molds or are used for further machining and testing – before the final mold is made. We prepare the mold concept in CAD/CAM already at the quotation stage, and once the details are agreed and approved by the customer, we implement the design for production. Every mold is tested and optimized on the casting machine.

Mold applications: automotive industry (engine and gearbox components, suspension parts), aerospace, power generation (turbine housings), construction and architecture (structural and decorative elements), machine building.

### Quotation for patterns and casting molds

- 2D drawing in PDF or 3D model in STEP format
- casting technology
- batch size

We will prepare the mold concept already at the quotation stage.

# Contact and quotation

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permanent mold, sand and high-pressure die castings, patterns and molds

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