

CASTING – HAND PRODUCTION USING MOULDS

1. Casting

Casting is a production method for complicated components. A **molten metal** or other material is **casted** into a **mould**.

There are two basic methods of casting:

- **Raw casting** – It is **casting** into **non-dried-up moulds**. This method is used for lower quality **castings**.
- **Dry casting** – It is **casting** into **preset dried-up moulds**. This method is used for higher quality **castings**.

We can use the following **casting** materials for example:

- **cast iron**
- steel for **castings**
- **brass** and bronze

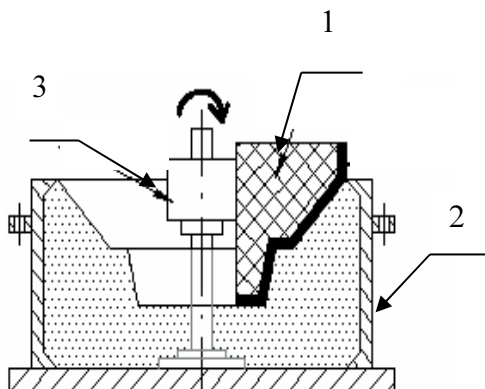
2. Hand production using moulds

2.1 There are the following **aids** for **mould** production:

2.1.1 Pattern – At first, we need a **casting** drawing. **Patterns** are metallic or wooden. For complicated **castings** they are divided.

2.1.2 Template – It is a wooden plate with a **casting** profile. We divide it into **rotating** (see Picture 1) and **sliding templates**.

Picture 1- Rotating template

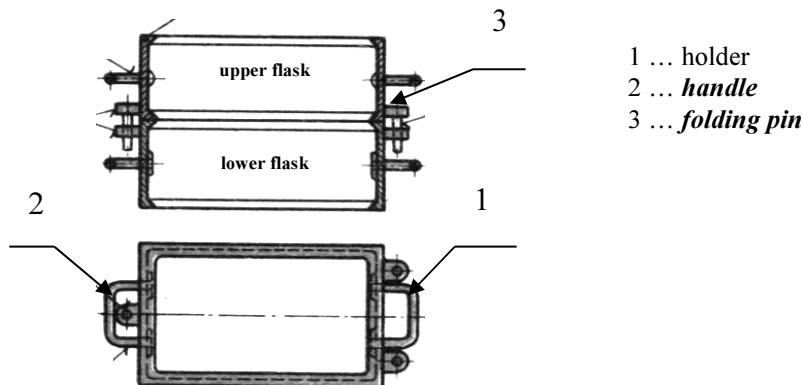


- 1 ... rotating **template**
- 2 ... **moulding flask**
- 3 ... **spindle**

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2.1.3 Moulding flasks – We use them for creating *sand moulds*. They are *solid* enough to be transferred from the *moulding hall* to the *casting bed*. *Flasks* are divided into upper and lower *flasks* (see Picture 2).

Picture2 - Moulding flasks



2.1.4 Moulding materials

They have two basic parts:

- *Opening material*, which is *quartz sand*.
- *Binding agents*, which are *clay* or *loam*.

Moulding materials have to have *formability*, strength, *refractability*, *coherence* and *permeability*.

Moulding mixtures components can be:

- *Facing sand*
- *Body sand*
- *Foundry powder*
- *Core sand*

2.1.5 Core

It is used in the production of *castings* with *cavities*. It is produced from *core sand* in a *core* box.

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VOCABULARY

aid	pomůcka	loam	hlína
body sand	výplňový písek	melted	roztavený
bonding agent	pojivo	metal	kov
brass	mosaz	mould	licí forma
cast	slévat	moulding flask	formovací rám
cast iron	litina	moulding hall	formovna
casting	odlévání, odlitek	opening material	ostřívo
casting bed	licí pole	pattern	model
cavity	dutina	permeability	prodyšnost
clay	jíl	preset	předem
coherence	soudržnost	quartz sand	křemenný písek
core	jádro	raw	syrový
core sand	jádrový písek	raw casting	lití na syrovo
dried-up	vysušený	refractability	žáruvzdornost
dry	suchý	rotating	rotační
dry casting	lití na sucho	sand mould	písková forma
facing sand	modelový písek	sliding	posuvný
flask	rám	solid	pevný
folding pin	skládací kolík	spindle	vřeteno
formability	tvárnost	strength	pevnost
foundry powder	slévárenský prášek	template	šablona

COMPREHENSION QUESTIONS

1. Can you define casting?
2. Can you name any casting materials?
3. Can you name the aids for mould production?
4. What forming mixtures do you remember from the text?

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EXERCISES**1. Translate the sentences into English:**

1. Slévání je způsob výroby složitých součástí.

2. Šablona je dřevěná deska s profilem odlitku.

3. Modelový písek a jádrový písek jsou komponenty formovacích směsí.

4. Formovací látky tvoří ostřiva a pojiva.

5. Tvárnost, pevnost a prodyšnost jsou vlastnosti formovací látky.

2. Here are 5 verbs. Make questions and ask partner.

cast

divide

transfer

produce

use

3. Find 11 mistakes in the text.

Casting is a production method for complicated components. Raw casting and dried casting are two basic methods in casting. Cast iron, bras and bronze are materials suitable for casting. Patterns is metallic or wooden. We devide template into rotating and sleeding templates. We use moulding flask for creating sand moulds. They are solit enough to be transferred from the molding hall to the casting bed. Core is produced in core sand from a core box.

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Exercises – key for teachers only**1. Translate the sentences into English:**

1. Casting is a production method for complicated components.
Slévání je způsob výroby složitých součástí.
2. Template is wooden plate with a casting profile.
Šablona je dřevěná deska, která má profil odlitku.
3. Facing sand and core sand are moulding mixtures components.
Modelový písek a jádrový písek jsou komponenty formovacích směsí.
4. Opening materials and binding agents are the moulding materials.
Formovací látky tvoří ostríva a pojiva.
5. Formability, strength and permeability are forming materials qualities.
Tvárnost, pevnost a prodyšnost jsou vlastnosti formovací látky.

3. Find 11 mistakes in the text.

Casting is a production method for complicated **componnents**. Raw casting and **dryed** casting are two basic methods **in** casting. Cast iron, **bras** and bronze are materials suitable for casting. Patterns **is** metallic or wooden. We **devide** template into rotating and **sleeding** templates. We use moulding flask for creating sand moulds. They are **solit** enough to be transferred from the **molding** hall to the casting bed. Core is produced **in** core sand **from** a core box.

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