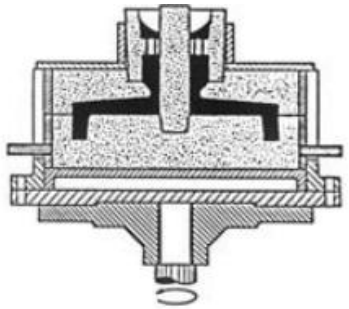
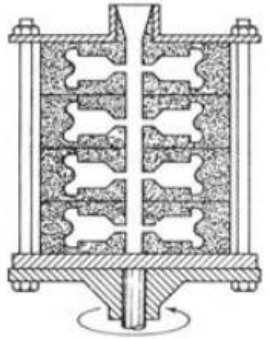
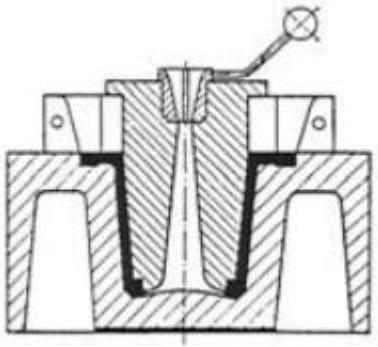
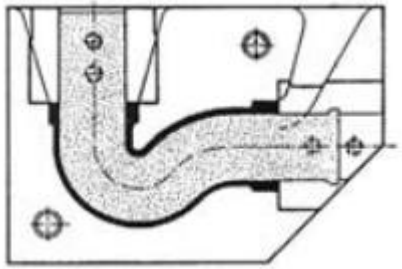
Vocabulary

- **semi-centrifugal casting**
- **centrifuge(d) casting, centrifuging, center spinning**
- **spin casting**
- **permanent mold casting, gravity die casting**
- **semi-permanent mold casting**
- **chill casting**



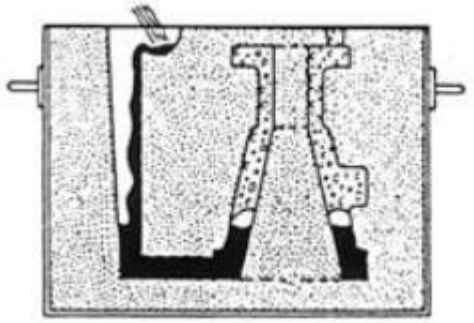






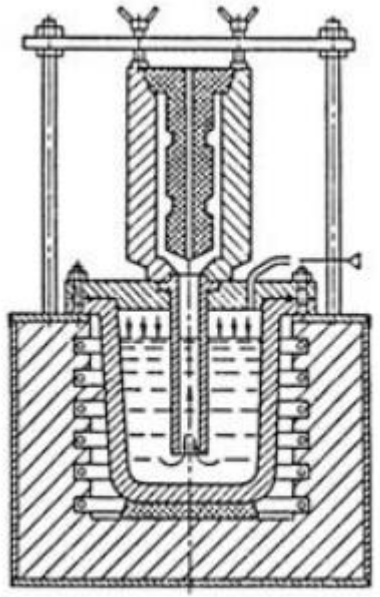
Vocabulary

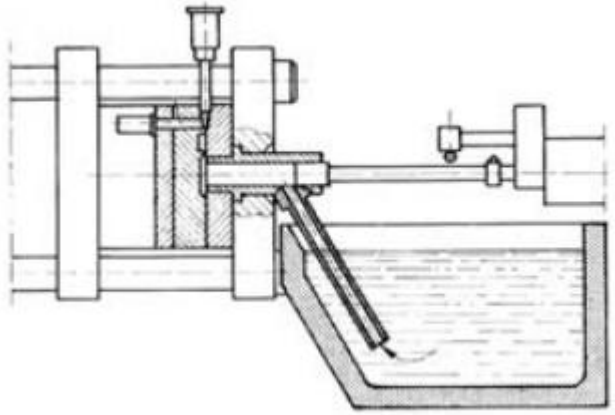
- Graphite mold casting
- Rubber mold casting
- **plaster mold casting**
- **Lost pattern casting, lost foam casting, cavityless casting, full mould casting, full mould process**
- **replicast process**



Vocabulary

- **low-pressure die casting**
- **(pressure) die casting**
- **evacuated die casting, vacuum (pressure) die casting**
- **static casting**
- **vibrational casting**
- **vacuum casting**
- Slush casting
- **belt-type disintegrator, belt aerator**
- **centrifugal cutter, centrifuge, centrifugal disintegrator**
- **Royer (sand mixer), Royer sand machine, sand royer**
- **sand cutter**
- **sprinkler**





Casting – John Campell

Grammer

04 The present continuous

The present continuous is used to talk about continued actions that are happening in the present moment.
It is formed with "be" and a present participle.

See also:
Present simple **1** Action and state verbs **50**
Infinitives and participles **51**

4.1 THE PRESENT CONTINUOUS

The present continuous is used to describe a current, continued action.

This is the present simple. It describes a repeated action or situation.

Julie usually wears jeans, but today she is wearing a dress.

The present continuous uses the verb "be."

This is the present continuous. It describes what is happening right now.

HOW TO FORM

SUBJECT	"AM / IS / ARE"	VERB + "-ING"	REST OF SENTENCE
She	is	wearing	a dress.

Present participle

FURTHER EXAMPLES

We are walking the dog.

He is washing the dishes.

They are talking on their phones.

The subject and the verb can be contracted.

They're fighting with each other.

She's relaxing at the moment.

It's raining a lot outside.

4.2 PRESENT PARTICIPLE SPELLING RULES

The present participle is formed by adding "-ing" to the base form of the verb. Some participles have slightly different spelling rules.

wear → **wearing**
Add "-ing" to form regular present participles.

Last letter is an "-e."
choose → **choosing**
Leave out "e."

Last letters are "-ie."
tie → **tying**
Change "-ie" to "y."

Last letters are consonant-vowel-consonant and the final syllable is stressed.
shop → **shopping**
Double the last letter, unless it's "w," "x," or "y."

TIP
Present participles follow the same spelling rules as gerunds.

FURTHER EXAMPLES

Don't double the last letter because the final syllable is not stressed.


They're opening a store next week.


My uncle is writing a novel.


Harry is always lying to his mother.


Terry is mopping the floor.


I am cutting some apples.


My mother is baking us a cake.

4.3 QUESTIONS IN THE PRESENT CONTINUOUS

To ask questions in the present continuous, swap the subject and the form of "be."

"He" is the subject.

He is playing tennis.

Is he playing tennis?

In a question, the verb moves to the start of the sentence.

This action is happening right now.

HOW TO FORM

"AM / IS / ARE"	SUBJECT	VERB + "-ING"	REST OF SENTENCE
Is	he	playing	tennis?

FURTHER EXAMPLES

Are they going to the park?

Is he cycling to work?

Is she eating pizza?

Are they working late?

Question words such as "what," "where," and "how" can be used before the verb to form open questions.

Where are we going today?

Are you coming to the party?

What are you eating for dinner?

Is it raining outside?

4.4 THE PRESENT CONTINUOUS NEGATIVE

To make the negative of the present continuous, add "not" after "be."

He is wearing a tie, but he { is not / isn't } wearing a hat.

Add "not" after "be" to make the negative. Contractions are also possible.

The present participle stays the same when you make the negative.

HOW TO FORM

SUBJECT	"AM / IS / ARE" + "NOT"	VERB + "-ING"	REST OF SENTENCE
He	is not	wearing	a hat.

The present participle doesn't change.

By: (mostly for transportation)

by walk	by mistake	by chance
by my watch	by heart	by check
by the sea	by night	by the air
by bus	by tomorrow	by the way

With: (mostly for tools)

with spoon	with his friend	with eye/ear
with white hair	with blue eyes	with pleasure
satisfied with	happy with	wrong with
trouble with	angry with	covered with
in accordance with	fall in love with	stay/keep in touch with

To:

lead to	belong to	complain to
grateful to	apologize to	next to
listen to	related to	invite to
owing to	send to	introduce to

Until / till / as far as

He studied until/till morning.
She walked as far as her home.

Leave / forget

I have left my bag at home.
She always forgets my phone number.

Beside / besides

He sat beside me. (کنار)
A man besides his friends went into the club. (بعلاوہ)

Remember / remind

I try to remember his name.
Please remind me to take my pill.

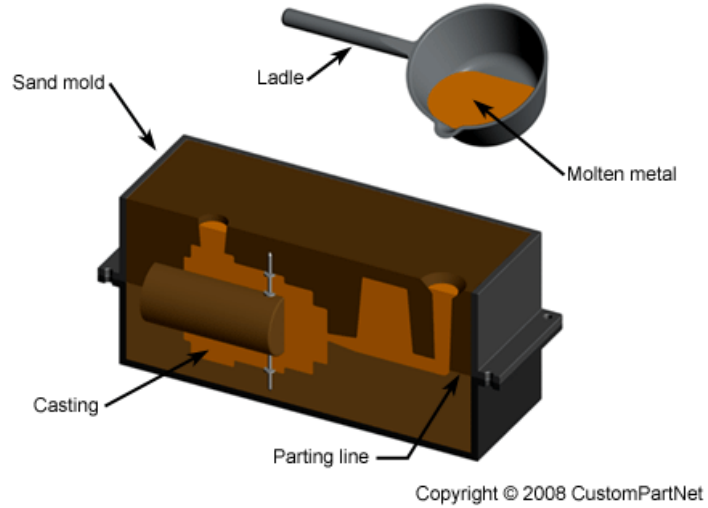
Different Types of Casting Processes Used in Manufacturing

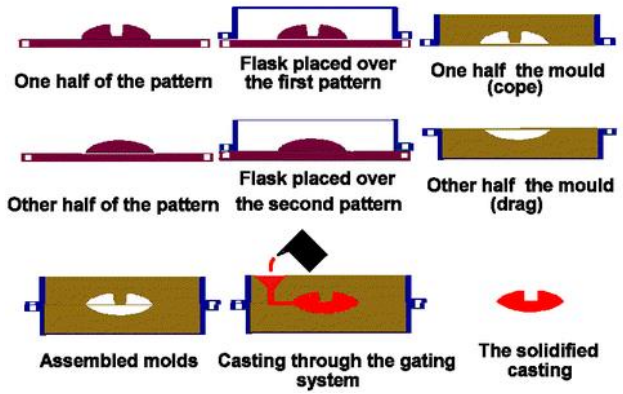
- Casting manufacturing is a process in which liquefied material, such as molten metal, is poured into the cavity of a specially designed mold and allowed to harden. After solidification, the workpiece is removed from the mold to undergo various finishing treatments or for use as a final product. Casting methods are typically used to create intricate solid and hollow shapes, and cast products are found in a wide range of applications, including automotive components, aerospace parts, etc

- Although casting is one of the oldest known manufacturing techniques, modern advances in casting technology have led to a broad array of specialized casting methods. Hot forming processes, such as die-casting, investment casting, plaster casting, and sand casting, each provide their own unique manufacturing benefits. Comparing both the advantages and disadvantages of the common types of casting processes can help in selecting the method best suited for a given production run.

Sand Casting

- Sand casting typically relies on silica-based materials, such as synthetic or naturally-bonded sand. Casting sand generally consists of finely ground, spherical grains that can be tightly packed together into a smooth molding surface. The casting is designed to reduce the potential for tearing, cracking, or other flaws by allowing a moderate degree of flexibility and shrinkage during the cooling phase of the process. The sand can also be strengthened with the addition of clay, which helps the particles bond more closely. Automotive products such as engine blocks are manufactured through sand casting.





Sand Casting

- Sand casting involves several steps, including patternmaking, molding, melting and pouring, and cleaning. The pattern is the form around which the sand is packed, usually in two parts, the cope and the drag. After the sand is compacted enough to replicate the pattern, the cope is removed and the pattern extracted. Then, any additional inserts called core boxes are installed and the cope is replaced. After the metal has been poured and solidified, the casting is removed, trimmed of the risers and gates that were used in the pouring process, and cleaned of any adhered sand and scale.

Sand casting

Sand casting's main advantages as a casting process include:

- Relatively inexpensive production costs, especially in low-volume runs.
- The ability to fabricate large components.
- A capacity for casting both ferrous and non-ferrous materials.
- A low cost for post-casting tooling.

Sand casting

- Despite its benefits, sand casting yields a lower degree of accuracy than do alternate methods and it can be difficult to sand cast components with a predetermined size and weight specifications. Furthermore, this process has a tendency to yield products with a comparatively rough surface finish.
- You can use the Thomas Supplier Discovery Platform to find Sand Casting Companies for your needs

Investment Casting

- Investment, or lost-wax, casting uses a disposable wax pattern for each cast part. The wax is injected directly into a mold, removed, then coated with refractory material and a binding agent, usually in several stages to build up a thick shell. Multiple patterns are assembled onto common sprues. Once the shells have hardened the patterns are inverted and heated in ovens to remove the wax. Molten metal is then poured into the remaining shells where it hardens into the shape of the wax patterns. The refractory shell is broken away to reveal the completed casting. Investment casting is often used to manufacture parts for the automotive, power generation, and aerospace industries, such as turbine blades.

Investment Casting

Some of the central advantages and disadvantages of investment casting include:

- A high degree of accuracy and precise dimensional results.
- The ability to create thin-walled parts with complex geometries.
- The capacity for casting both ferrous and non-ferrous materials.
- Relatively high-quality surface finish and detail in final components.

Investment Casting

Although it is highly precise, investment casting is usually more expensive than other comparable casting techniques and is typically only cost-efficient when sand or plaster castings cannot be used. However, the expense can sometimes be compensated for with reduced machining and tooling costs due to investment castings' quality surface results.

You can use the Thomas Supplier Discovery Platform to find Investment Casting Companies for your needs.

Plaster Casting

- Plaster casting is similar to the sand casting process, using a mixture of gypsum, strengthening compound, and water in place of the sand. The plaster pattern is typically coated with an anti-adhesive compound to prevent it from becoming stuck against the mold, and the plaster is capable of filling in any gaps around the mold. Once the plaster material has been used to cast the part, it usually cracks or forms defects, requiring it to be replaced with fresh material.

Plaster Casting

The advantages offered by plaster casting include:

- A very smooth surface finish.
- The ability to cast complex shapes with thin walls.
- The capacity for forming large parts with less expense than other processes, such as investment casting.
- A higher degree of dimensional accuracy than that of sand casting.

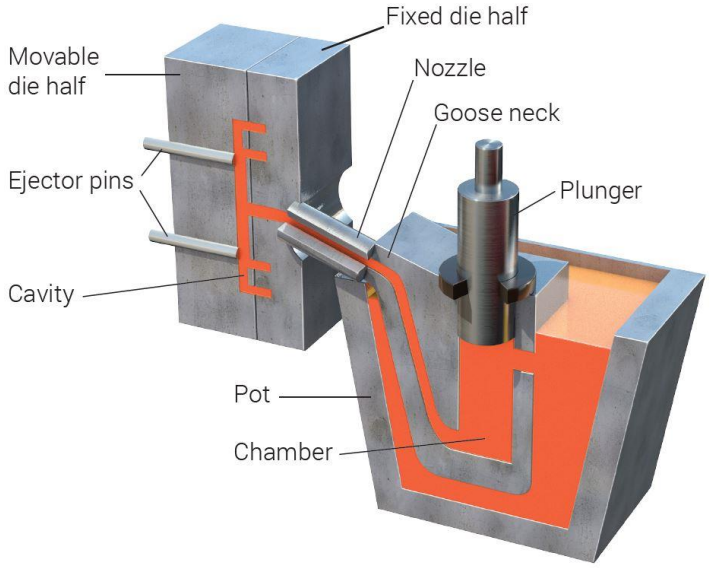
Plaster Casting

This process tends to be more expensive than most sand casting operations and may require frequent replacements of the plaster molding material. It is usually more effective and cost-efficient when the quality of the surface finish is an important requirement. Its application is generally limited to casting aluminum and copper-based alloys.

You can use the Thomas Supplier Discovery Platform to find Plaster Casting Companies for your needs.

Die Casting (Metal Casting Process)

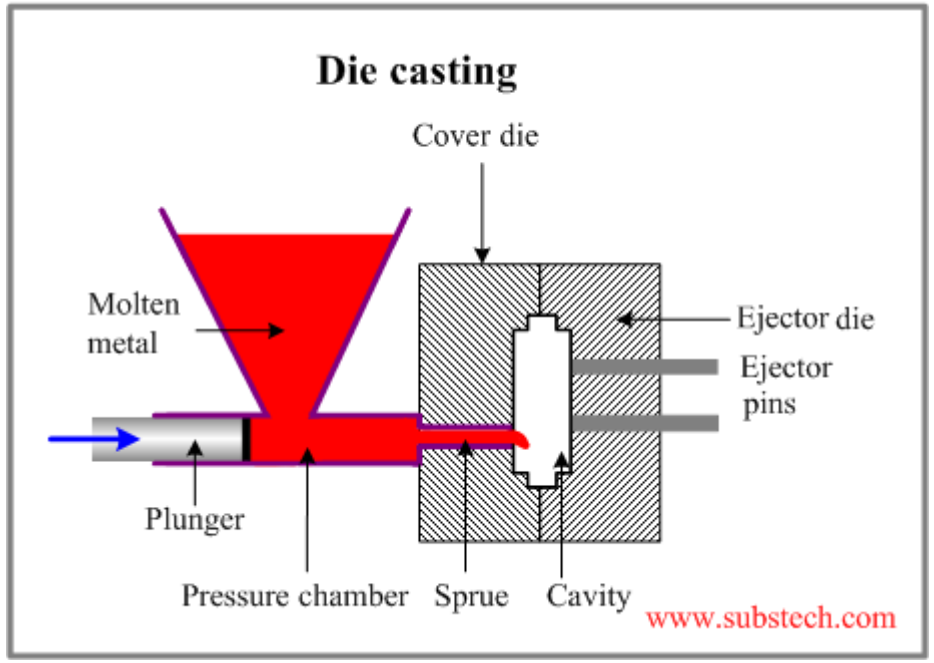
- Die casting is a method of molding materials under high pressure and usually involves non-ferrous metals and alloys, such as zinc, tin, copper, and aluminum. The reusable mold is coated with a lubricant to help regulate the die's temperature and to assist with component ejection. Molten metal is then injected into the die under high pressure, which remains continuous until the workpiece solidifies. This pressurized insertion is rapid, preventing any segment of the material from hardening before being cast. After the process is completed, the component is taken out of the die and any scrap material is removed.



Die Casting

A few of the major advantages provided by die casting include:

- Close size and shape tolerances.
- High component dimensional consistency and uniform design.
- A reduced need for post-casting machining.



Die Casting

- Despite its advantages, die casting as a metal casting process has relatively high tool costs, making it more cost-efficient in high-volume product runs. It can also be difficult to ensure the mechanical properties of a die-cast component, meaning these products usually do not function as structural parts. As the molds are typically two-piece, die casting is limited to products that can be removed from the mold without destroying the mold, as is done in other casting processes.
- For more information on Die Casting, you can review our Types of Die Casting guide, which goes into depth on the various types, alloys, and considerations for choosing a specific process/alloy combination.

- **dust extractor, de-silter**
- **magnetic separator**
- **magnetic pulley, magnetic drum**
- **overband magnet, overband (magnetic) seperator**
- **sand cooler, sand cooling unit**
- **book mould, book die**
- **tilt mould**
- **slab mould**

- **chill mould**
- Graphite mould
- **core (assembly) mould, all-core mould**
- **plaster mould**
- **ceramic mould**
- **(Croning) shell mould**
- **loam mould**
- **strickled mould, schabloned mould, swept mould, sweep mould**
- **cement (-bonded sand) mould**