

Workshop Technology

[Foundry Practice]

Foundry Practice



Foundry Practice

Introduction

Foundry processes consist of making molds, preparing and melting metal into the molds, cleaning the castings, and reclaiming the sand for reuse. Founding, or casting, is the process of forming objects by putting liquid or viscous material into prepared mold or form.



Foundry Practice

Casting

Casting is one of the oldest and most popular process of converting into final useful shapes.

It is the process of pouring molten metal into a mold cavity of required shape and size and allowing for cooling.

It involves a series of operations:

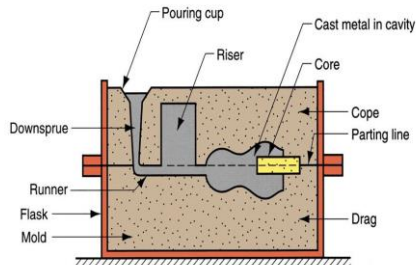
- Pattern making
- Core making
- Mold making
- Melting
- Pouring
- Cleaning and inspection



Foundry Practice

Casting Terms

- Flask
- Mold
- Drag
- Cope
- Pattern
- Core
- Pouring Basin
- Sprue
- Runner
- Gate
- Riser



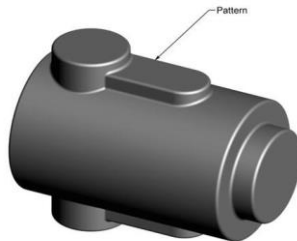
Foundry Practice

Pattern

Pattern is the principle tool during the casting process.

It is a full sized model of the desired casting.

Its purpose is to form a cavity of desired shape and size in the mold which when filled with molten metal produces the casting on solidification. Patterns are generally made of wood, metal, plastic or wax.



Types of pattern

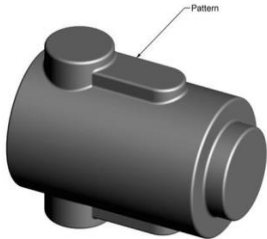


Figure: Solid pattern

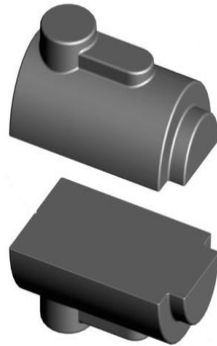


Figure: Split pattern

Types of pattern

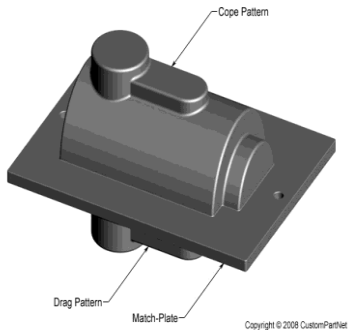


Figure: Match plate pattern

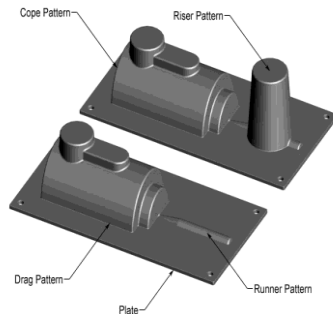


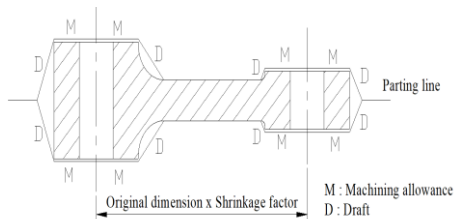
Figure: Cope and drag pattern

Pattern allowances

Shrinkage allowance: Patterns are made larger than the casting to compensate contraction of the liquid while freezing.

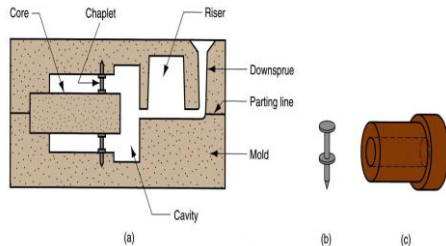
Machining allowances: Allowance required to remove the rough cast surface.

Draft allowance: To facilitate ease of removal.

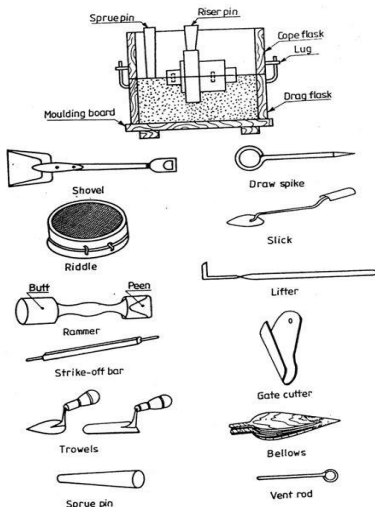


Core

Cores are separate shapes of sand that are generally required to form the hollow interior of the casting or a hole through the casting. Cores for sand casting are manufactured by packing specially prepared sand in core boxes.



Foundry Tools



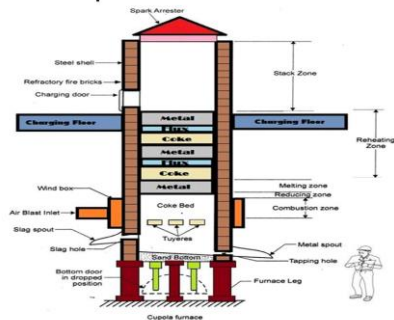
MOULDERS' TOOLS AND EQUIPMENT

**MOULDING BOARD
FLASK
SHOWEL
DRAW SPIKE
RIDDLE
SLICK
RAMMER
LIFTER
STRIKE-OFF BAR
TROWELS
GATE CUTTER
BELLOWS
SPRUE PINS
VENT ROD**

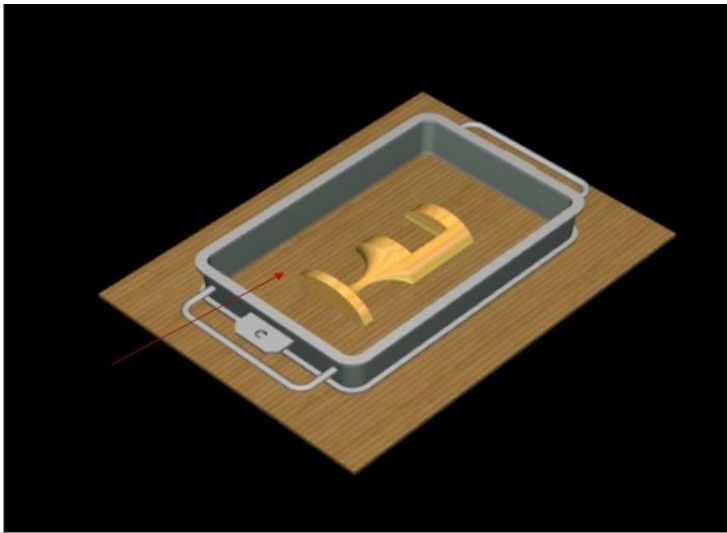
Melting Furnace

Melting is an equally important parameter for obtaining a quality castings. A number of furnaces can be used for melting metal to be used, to make a metal casting. Cupola furnace is common furnace found in iron foundries.

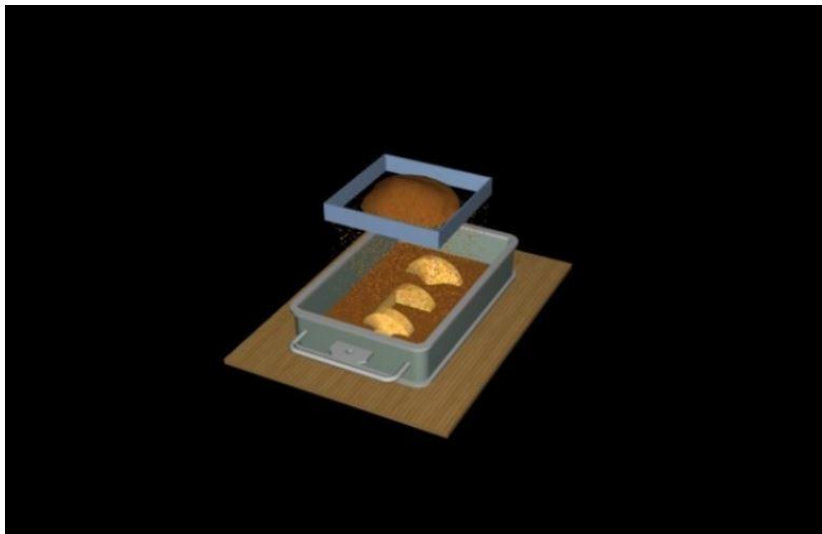
Cupola Construction



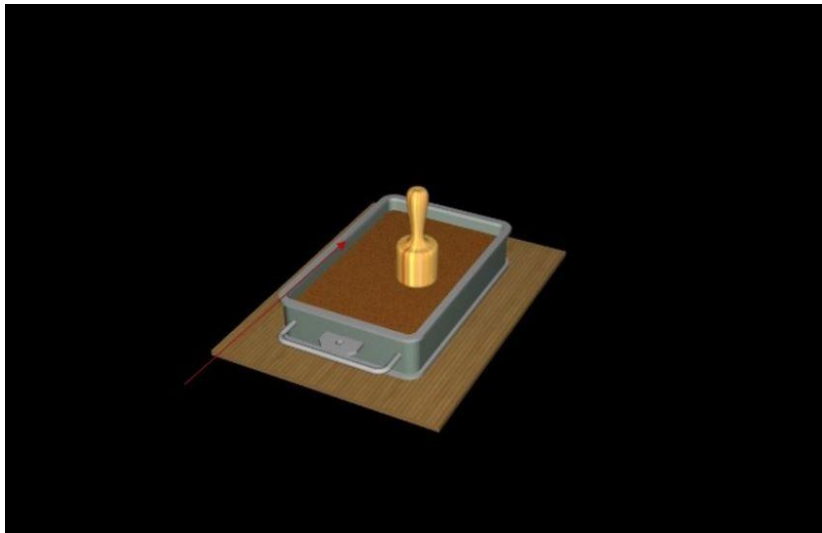
Casting Process



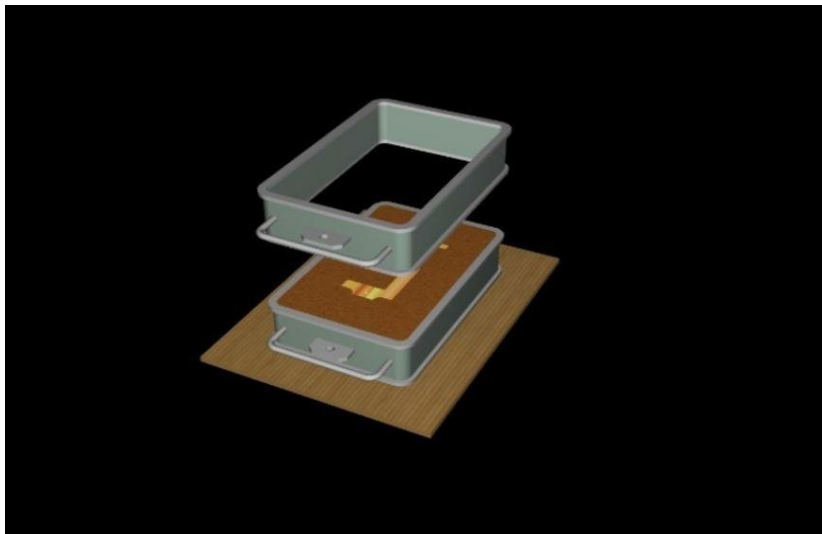
Casting Process



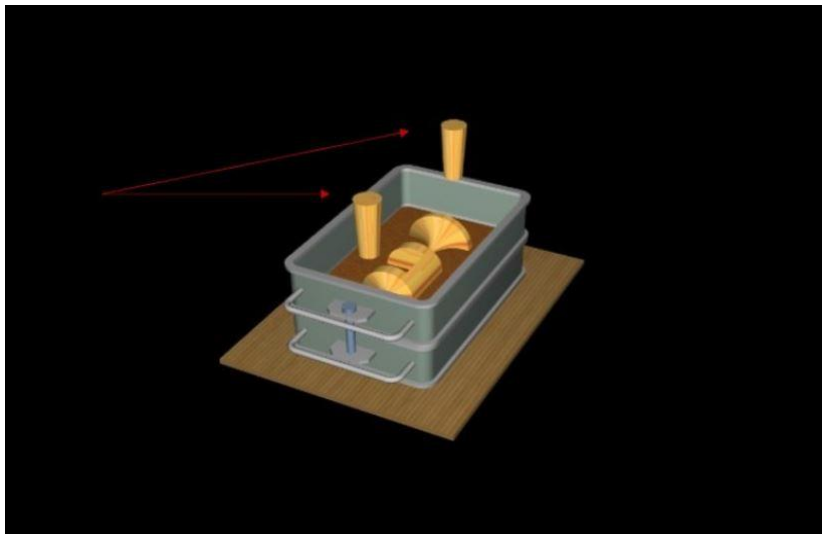
Casting Process



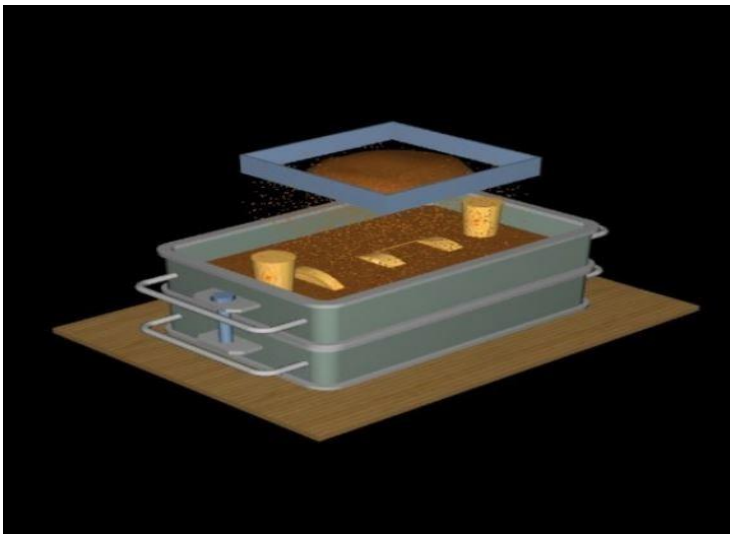
Casting Process



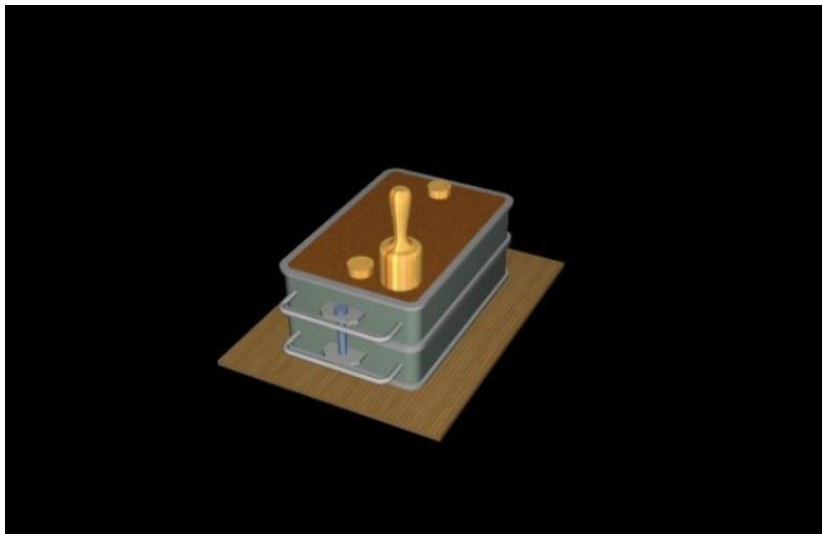
Casting Process



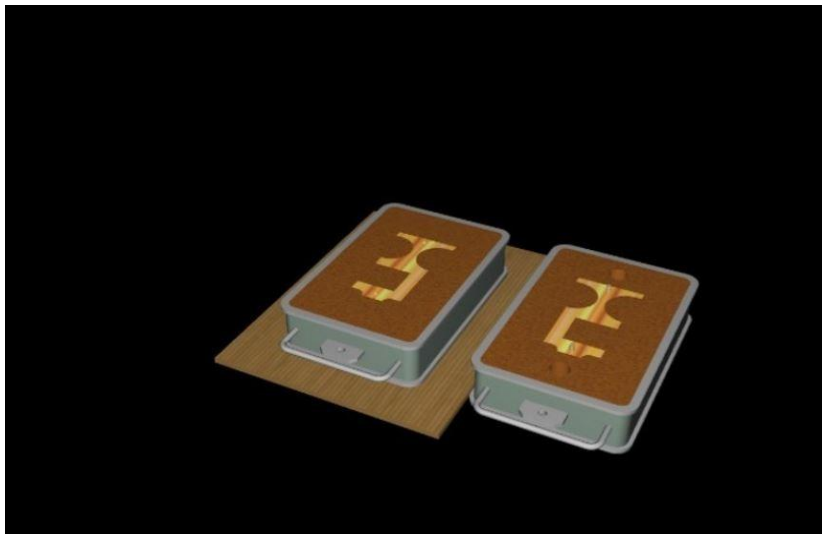
Casting Process



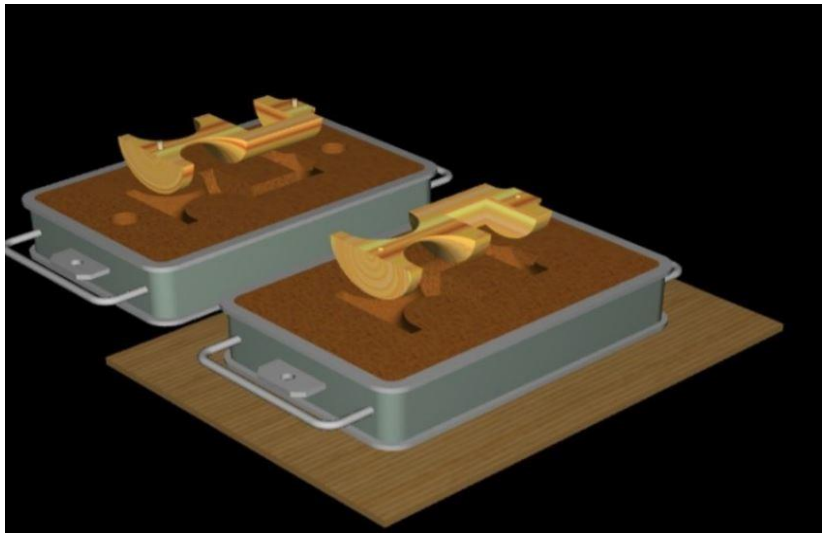
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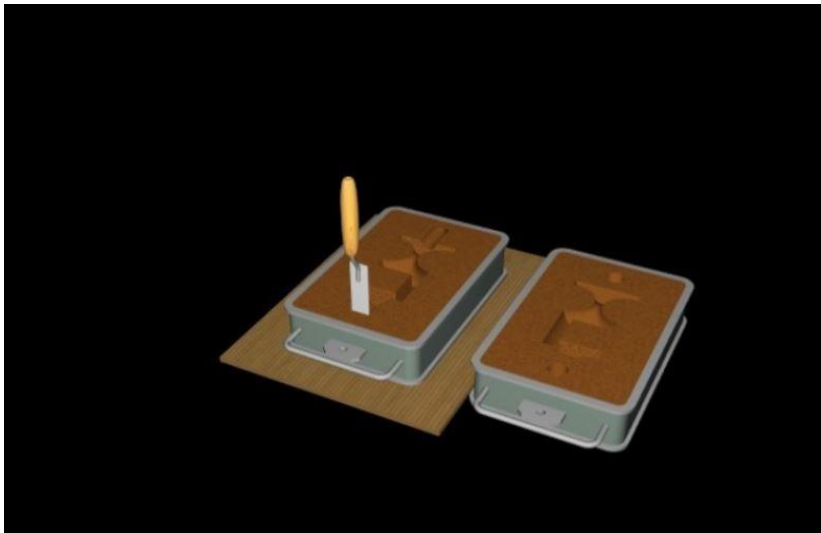
Casting Process



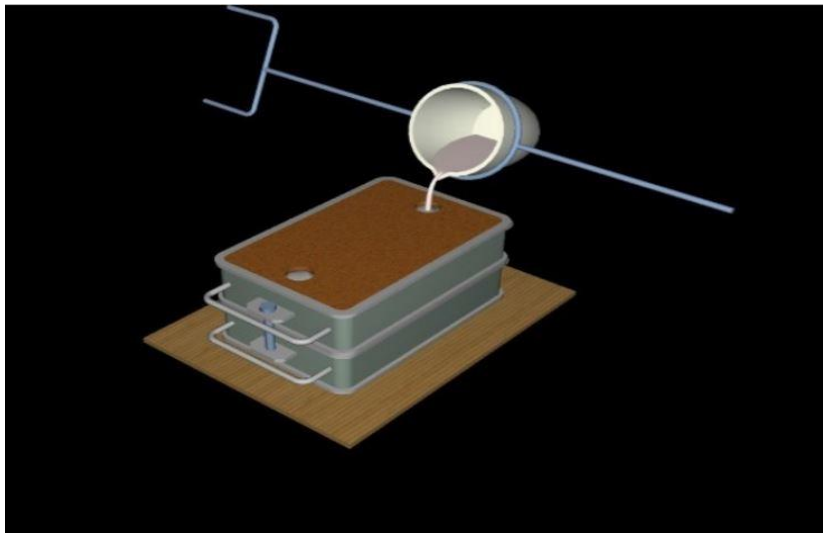
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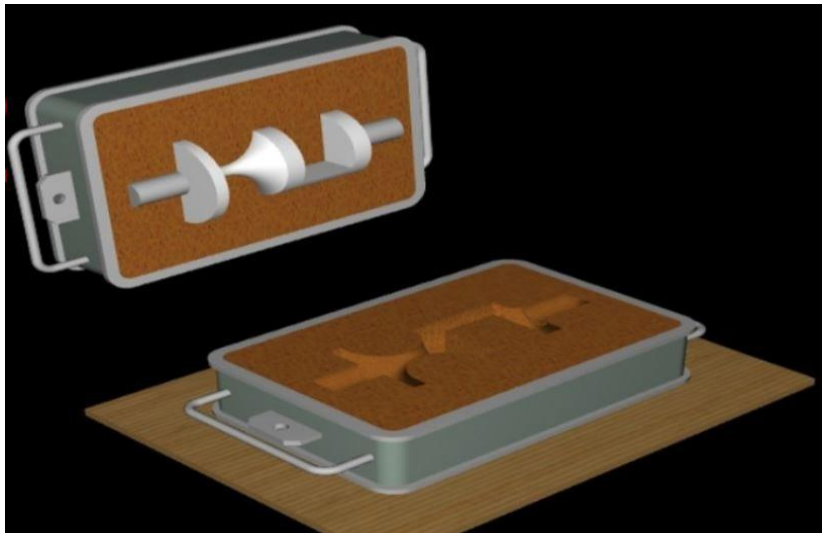
Casting Process



Casting Process



Casting Process



Now we will understand the process of sand casting in detail.

THANK YOU !!