

Cleaning of Casting

fettling (cleaning) is a series of operations which help in giving the casting a good appearance after the same has been shocked out of the mold. It includes

- (1) Removal of cores from the casting,
- (2) Removal of gates, risers, runners etc. from the casting
- (3) Removal of adhering sand and oxide scale from the casting surface (Surface cleaning)
- (4) Removal of fins and other unwanted projections from the casting (Trimming).

① Removal of cores : - Hammering or vibration given to cores does not loosen and break the cores. Sand portion sticking inside the casting are removed by poking action using a metal rod. Cores from larger castings may be removed effectively by pneumatic rapping and hydro blasting.

5. Finishing of castings.

It is a later stage of cleaning after removal of sand, gates, risers and other unwanted projections to smoothen the areas of casting from where gates and risers have been removed and also to improve surface finish and appearance of casting.

Different finishing operations include
(a) grinding, (b) Rotary filing, (c) machining — milling etc,
(d) chemical treatment, (e) polishing, (f) Bronzing, (g) Buffing
(h) painting etc.

Special Casting Techniques

There are certain limitations possessed by conventional casting which give rise to the development of special casting processes which have ^{numerous} advantages such as

- (i) Greater dimensional accuracy
- (ii) Higher quality
- (iii) Lower production cost (in some cases)
- (iv) Ability to cast extremely thin sections
- (v) Higher rate of production
- (vi) Better surface finish etc.

① Die Casting : — In this casting steel mould (known as dies) are used and it is best suited for mass production. There are two types of die casting processes.

- (i) Gravity die casting process
- (ii) Pressure die casting

(i) Gravity die casting : — It is also known as Permanent mold casting or metallic mold casting. In this process the mold is filled with metal under the influence of gravity and it is described earlier.

(ii) Pressure die casting : — In this process the metal is forced into the metallic mold under pressure. These mold or dies are ^{usually} in two halves. One half is called stationary die and the other half is known as movable die.

SHORT TYPE QUESTIONS

1. Write advantages and limitations of casting.
2. Describe different materials used to make Pattern ~~and~~ with their advantages and disadvantages.
3. Explain important properties of moulding sand.
4. Describe different additives and their role in moulding.
5. With sketches describe different types of core.
6. With figures explain the location of different risers.
7. With sketches explain the investment casting.
8. Show the steps of Shell moulding.
9. Briefly describe the methods of removal of gates and risers from casting.
10. Explain different allowances given to Pattern.

Long type Questions

1. Briefly describe different types of Pattern.
2. Describe the procedures for (a) clay content, (b) moisture content tests of moulding sand.
3. Explain carbon dioxide moulding process.
4. With a diagram explain construction and operation of Cupola used for C.I. melting.
5. Explain different die casting processes.
6. Describe different Centrifugal casting methods.
7. Explain in detail different Casting defects and their remedies.

Assignment ON Foundry Engg. - 6th Semester (Met)
OBJECTIVE QUESTIONS

1. Define Casting
2. Write basic steps of casting process.
3. Define Pattern
4. Define core.
5. What is Master Pattern?
6. State the important ingredients of molding sand.
7. What is Lost wax process?
8. Mention important elements of Gating system.
9. Write the roles of Chills and Chaplets.
10. Write the types of melting furnaces.
11. What is Scale?
12. Why Hot tear is formed?
13. Differentiate between Facing sand and Backing sand.
14. Write the principle of Centrifugal casting.
15. Mention different die casting techniques.
16. Name different allowances given to Pattern.
17. What should be the pouring temperature of metal to be cast.
18. Mention different pattern materials used to make Pattern.
19. Why Blow holes are formed?
20. What should be the ideal shape of a riser?
21. Mention different types of riser.
22. What is Flogging in cleaning process?
23. Name different ~~methods~~ in cleaning methods of casting.
24. Differentiate between Dry strength and Hot strength.
25. State Chvorinov's Rule.