



IIT ROORKEE



NPTEL ONLINE
CERTIFICATION COURSE

FETTLING OF CASTINGS

Shaking and cleaning methods

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Introduction

- Fettling is defined as the operation of cutting off the unwanted parts, cleaning and finishing the casting
- After metal has solidified, casting is knocked out by breaking the mold as early as possible.
- The temperature at which the casting is knocked out of the mold depends upon size and complexity of the shape of the casting.
- Casting is transferred to shaking station (shaking can be manually or using mechanical means).

Different stages of fettling

- Knocking out of dry sand cores
- Removal of gates and risers
- Extraction of fins and unwanted projections at different places
- Cleaning and smoothening of surface
- Repairing of castings to fill up blowholes, cracks etc.
- Straightening the warped or deformed casting

➤ **Knocking of Dry sand cores**

- By rapping or knocking with iron bar (pneumatic or hydraulic devices may be used)

➤ **Removal of gates and risers**

- Depends in size and shape of casting and type of metal
- Use of hammer/saws
- Flame cutting
- Sprue cutter for shearing of sprues
- Abrasive cut off machine
- Plasma arc cutting

Removal of fins and unwanted projections (snagging)

- Using grinders
- Chipping with hand/pneumatic tools
- Gouging and flame cutting
- Removing metal by arc/air equipment
- Filing

Care should be ensured to take proper casting contour

Cleaning and smoothening casting

➤ **Tumbling**

- Use of stars (white iron pieces) in tumbling barrel for complete cleaning and polishing operation
- While charging, castings should be packed tight

➤ **Tumbling with hydroblast**

➤ **Cleaning with compressed air blast (sand blasting)**

➤ **Cleaning with mechanical impact (shot blasting)**

➤ **Arc air process**

➤ **Pickling**

Repairing the casting

- Using welding process
- Using soldering/brazing
- Using resin impregnation
- Using epoxy fillers
- Straightening
- Metal spraying

THANKS

