



Ferrite Production

Brief introduction of ferrite production process

Ferrites :

Chemical composition : **A Fe₂ O₄**

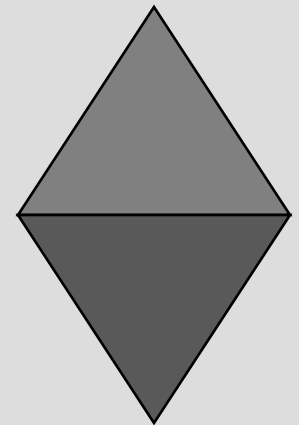
Ferroxcube materials : **with A = Mn, Ni, Zn etc.**

3 Mn,Zn-ferrites Mangan-Zink 3C90, ...

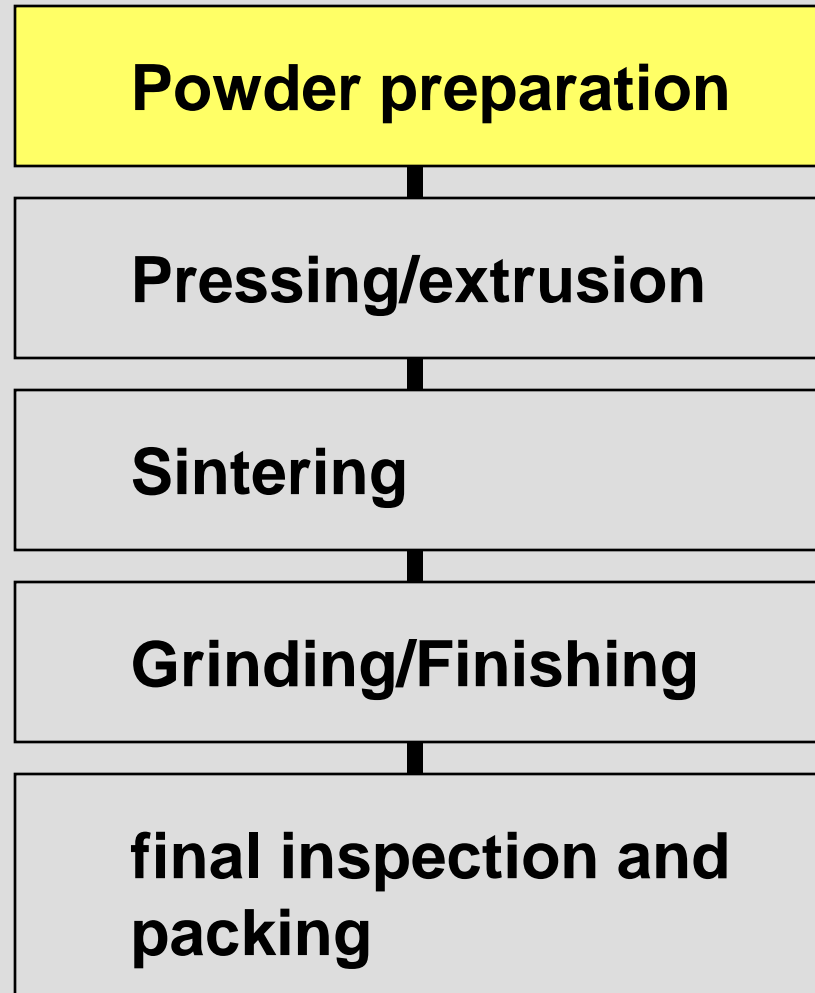
4 Ni,Zn-ferrites Nickel-Zink 4C65, ...

General properties :

- * hard, but brittle
- * chemically inert

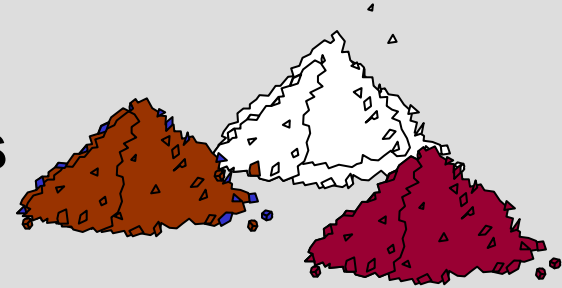


flowchart production

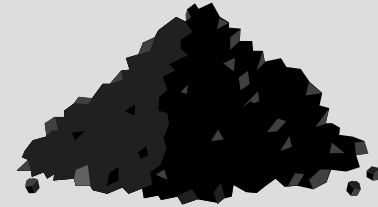


Powder preparation :

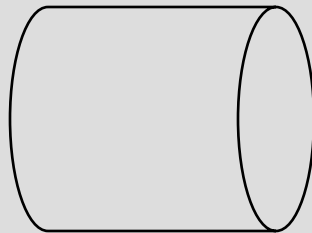
- Weighing and mixing raw materials



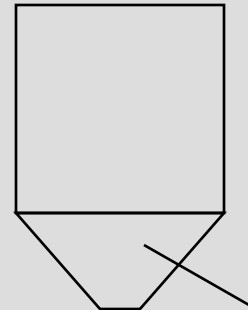
- Prefiring (chemical conversion)



- Milling

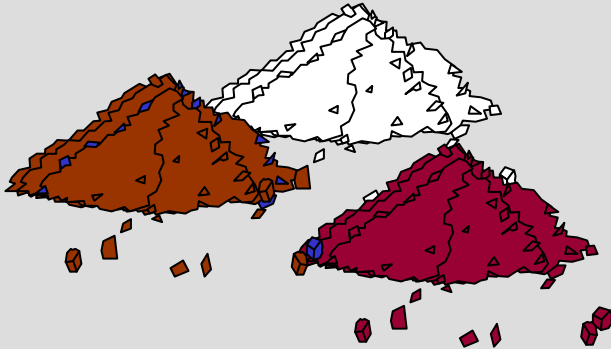


- Spray-drying



Mixing and Weighting

Example of a control panel

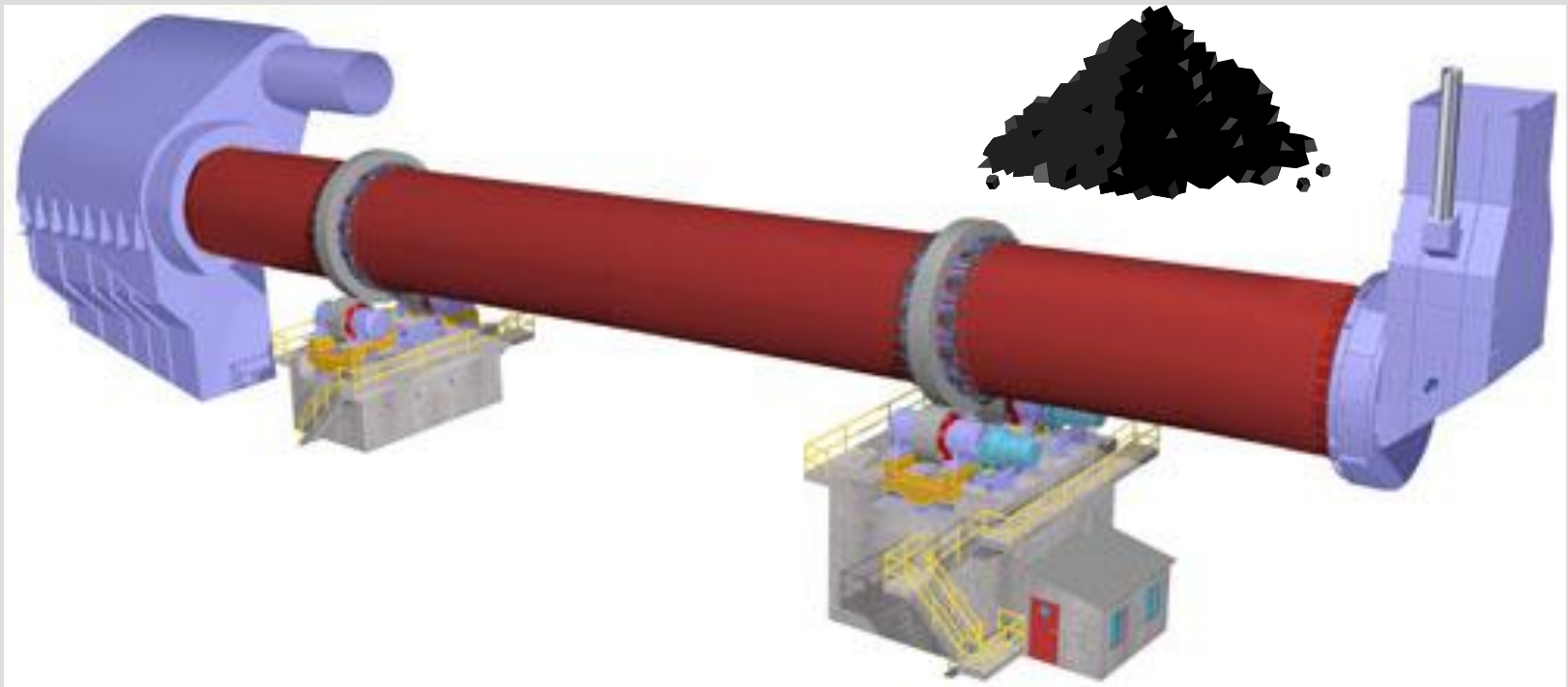


Of raw materials



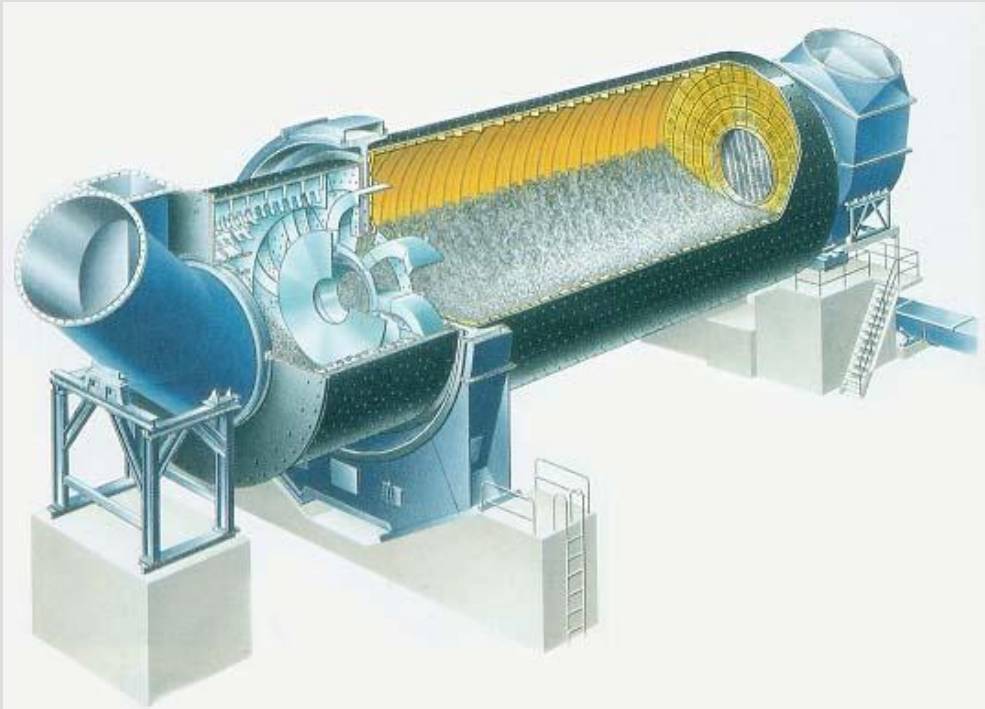
Prefiring; example of rotary pipe kiln

The powder will be heated to around 900 degrees to get a chemical reaction resulting into flakes (few cm³)



Milling; example ball milling principle

The prefired material is milled with balls in water to slurry
After the addition of some binder, the slurry is ready for spray drying



Spray drying principle

Through a high pressure nozzle, the slurry comes into the air heated area in the upper part and will dry fast to small balls of a few mm³.



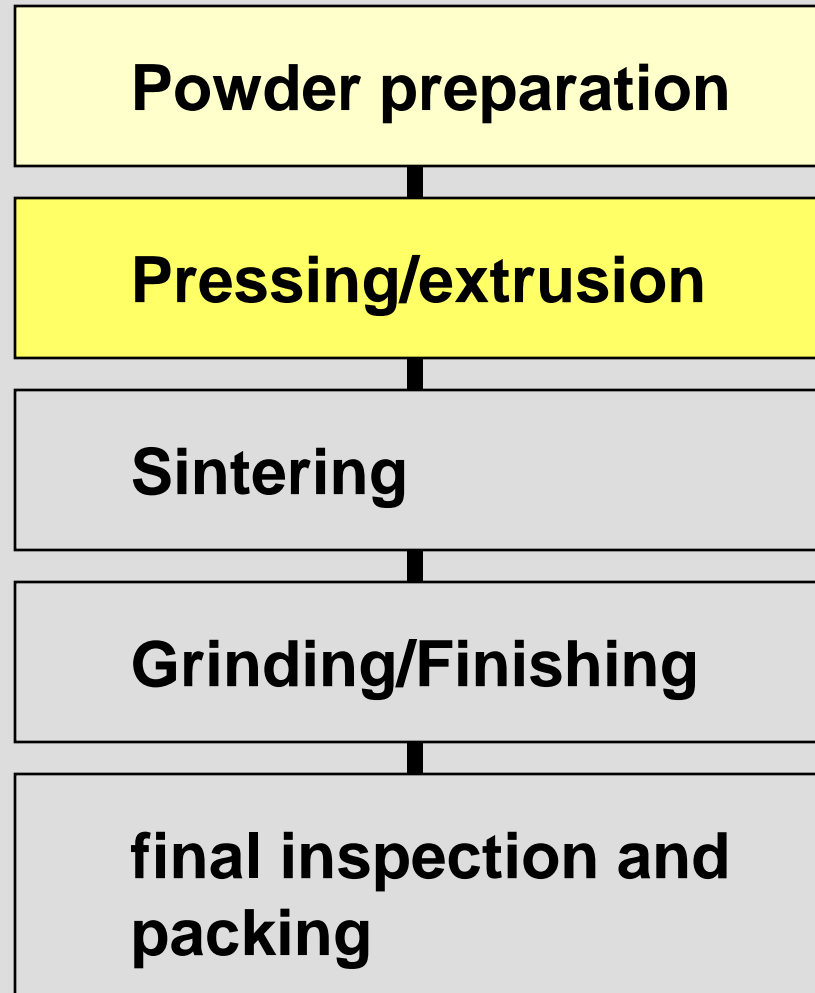
Powder preparation

- Weighing and mixing raw materials
- Prefiring (chemical conversion)
- Milling
- Spray-drying

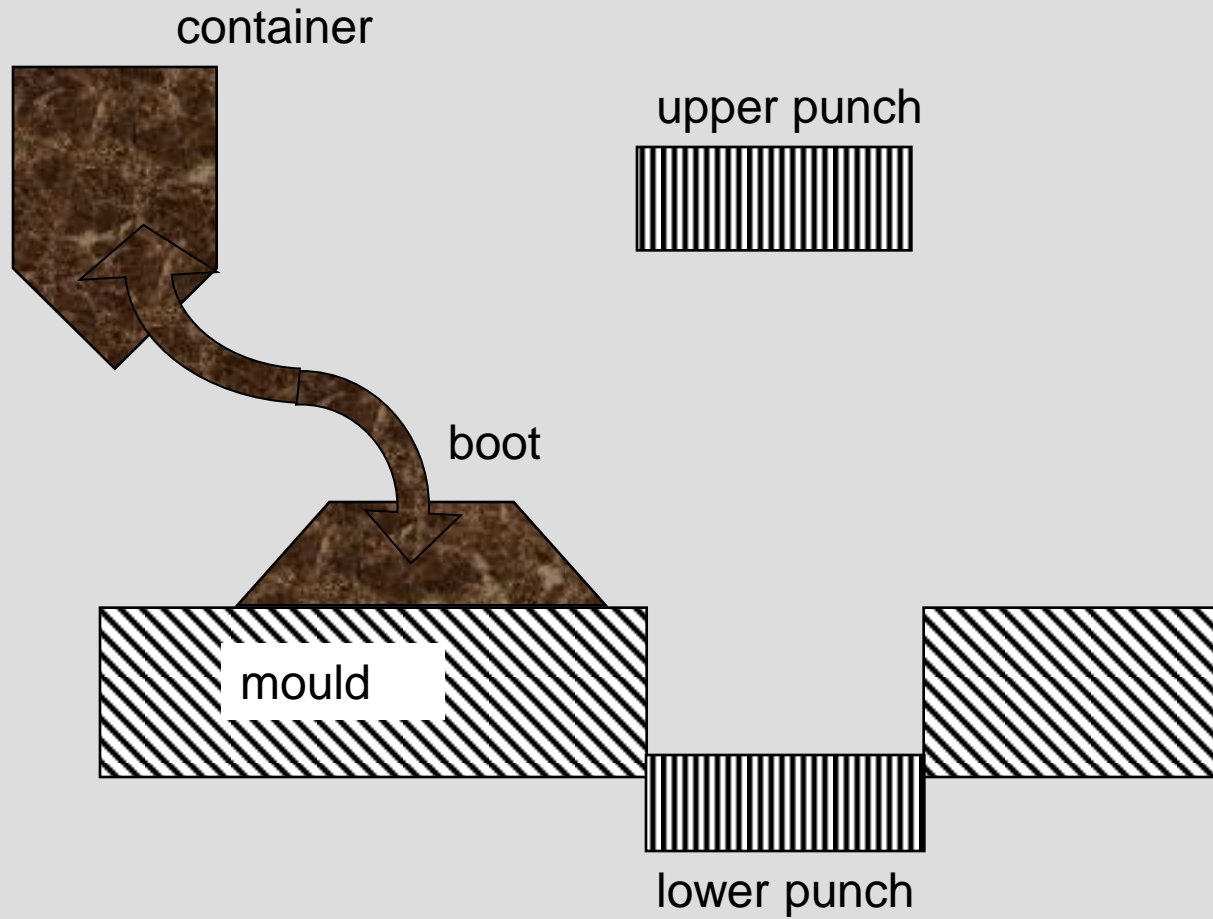
Powder storage in big bags ==>



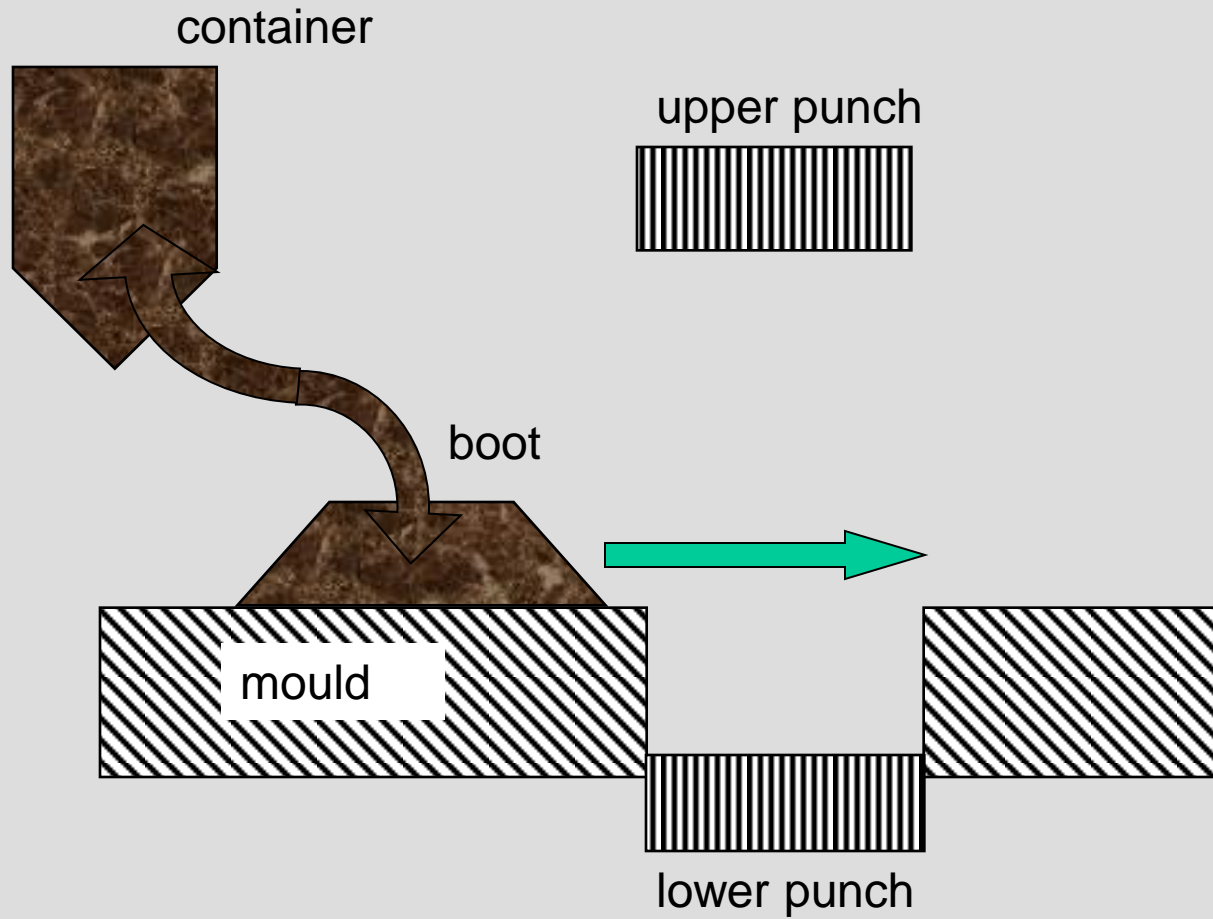
flowchart production



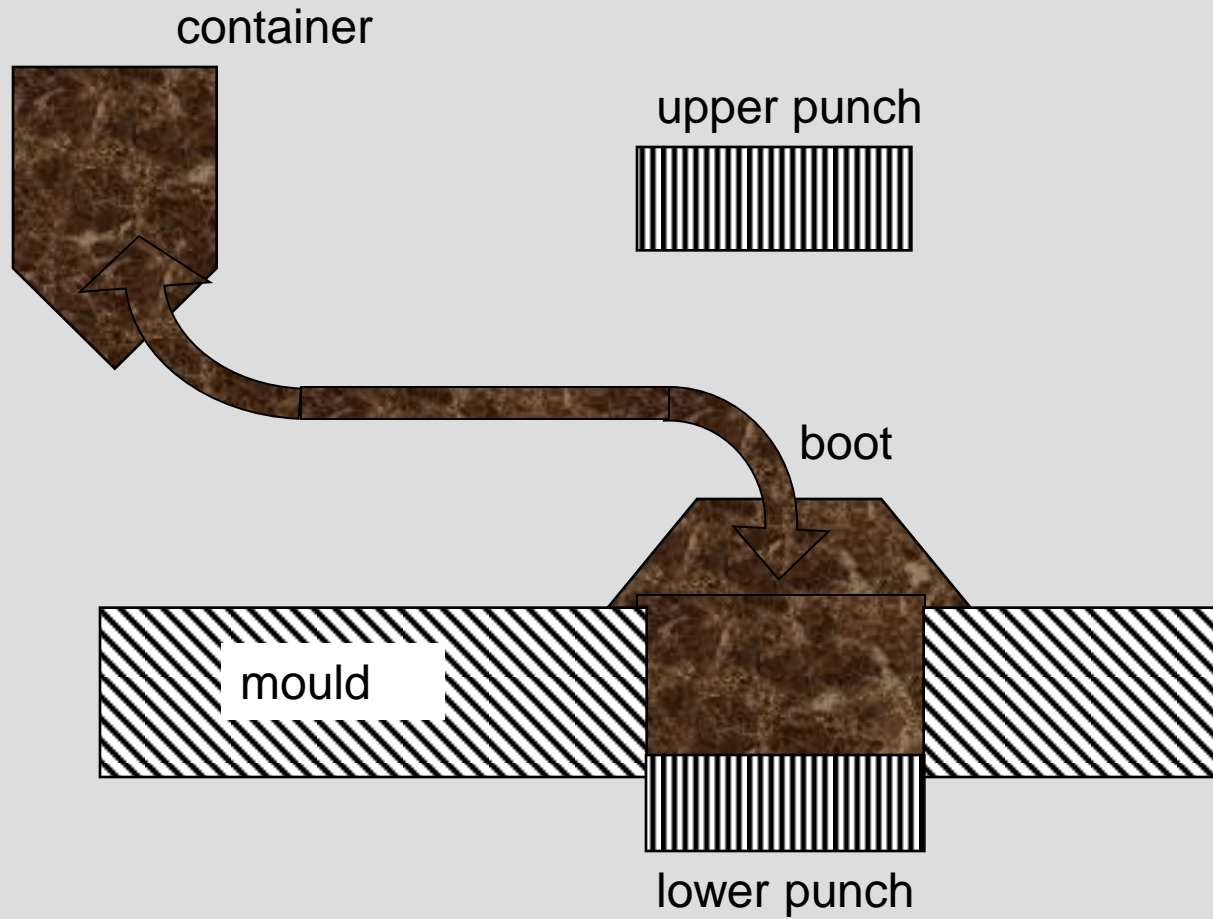
Pressing



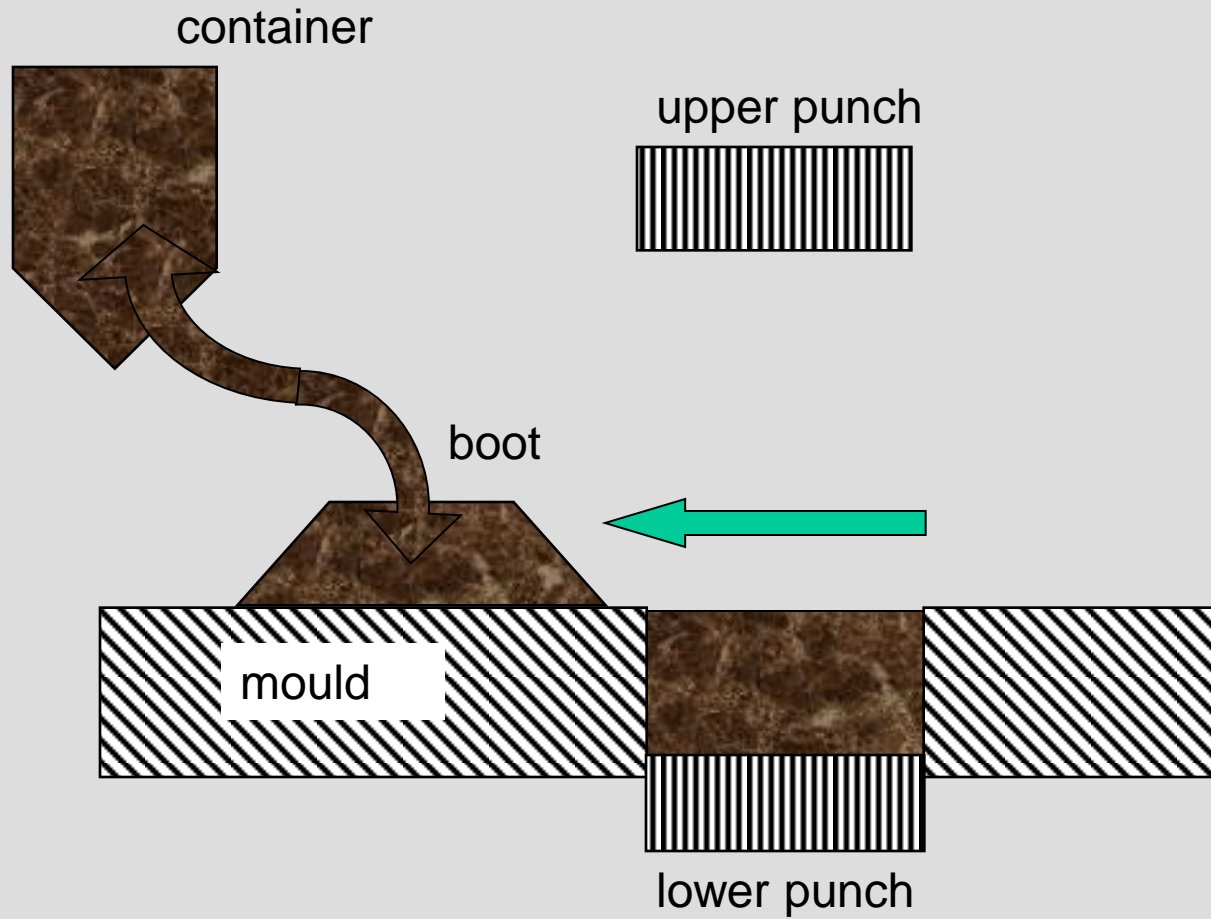
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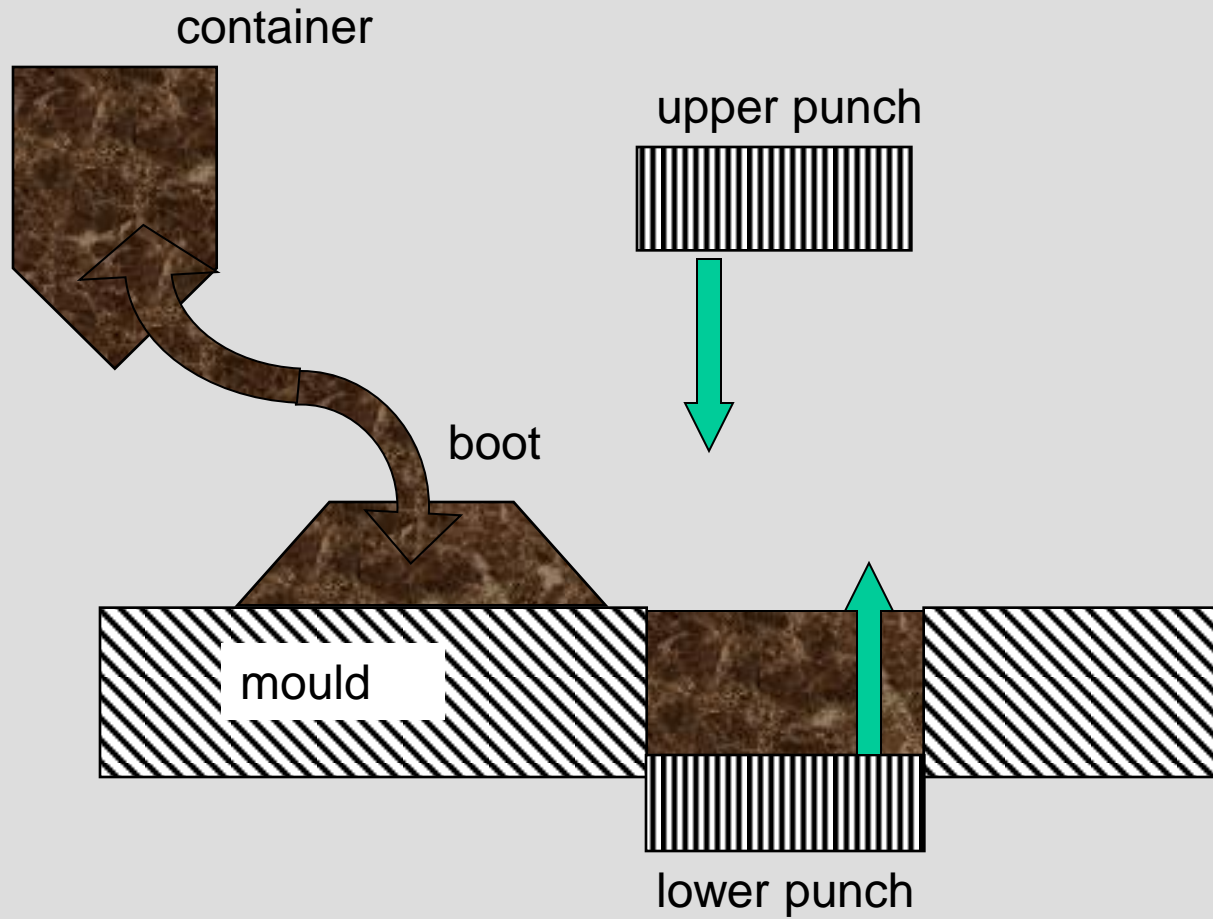
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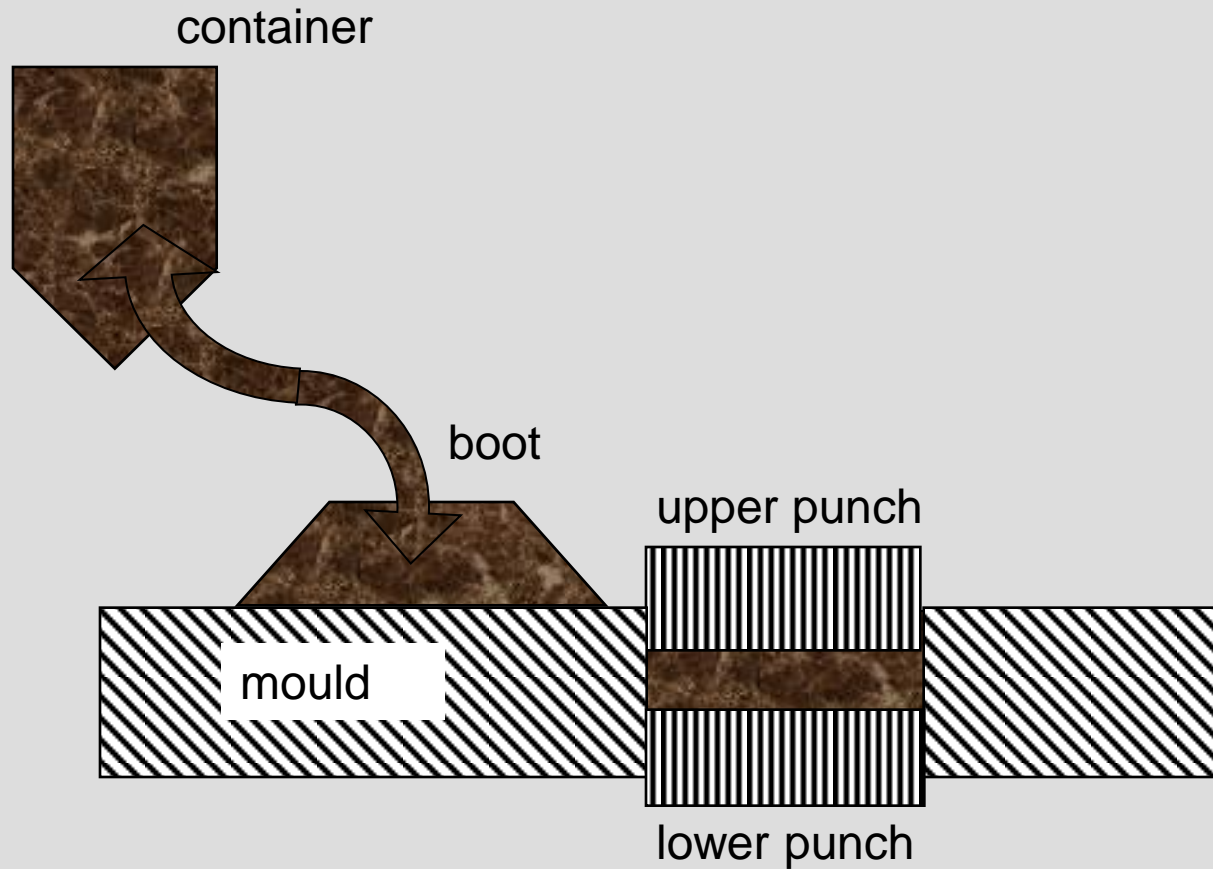
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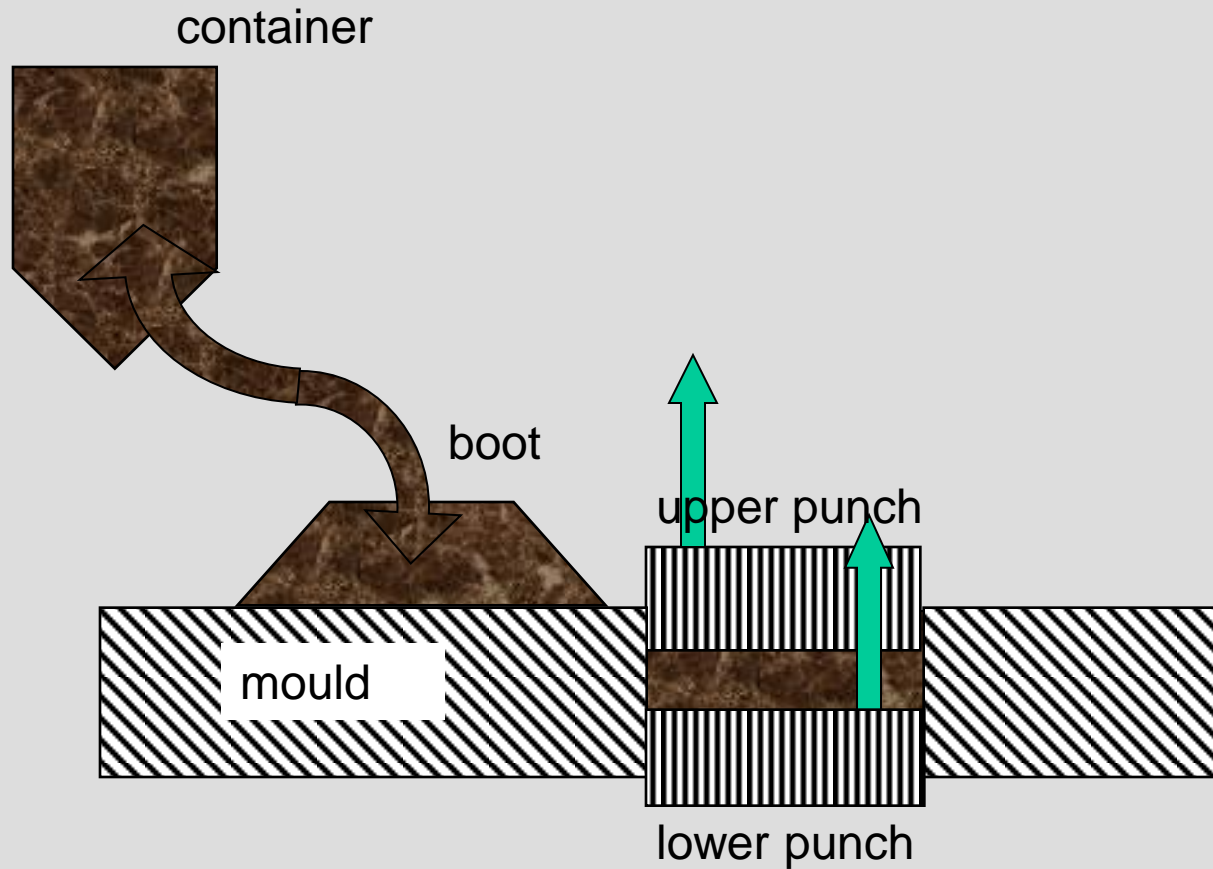
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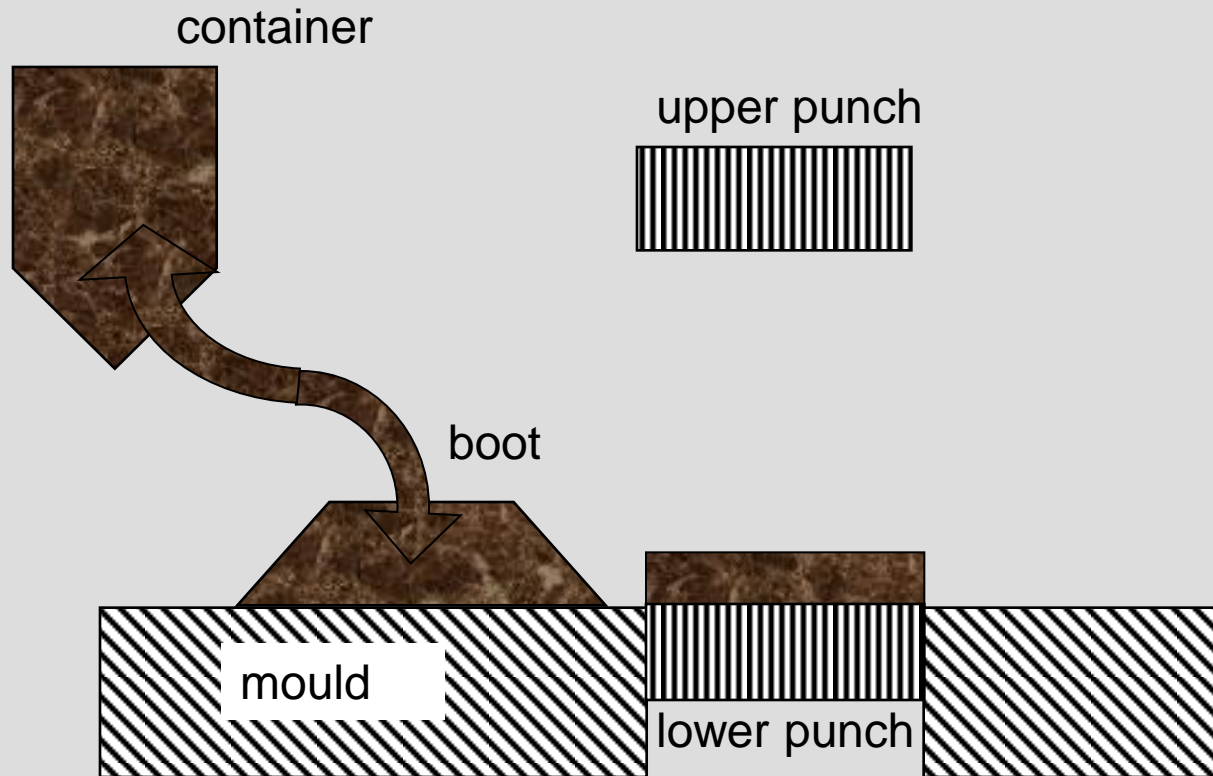
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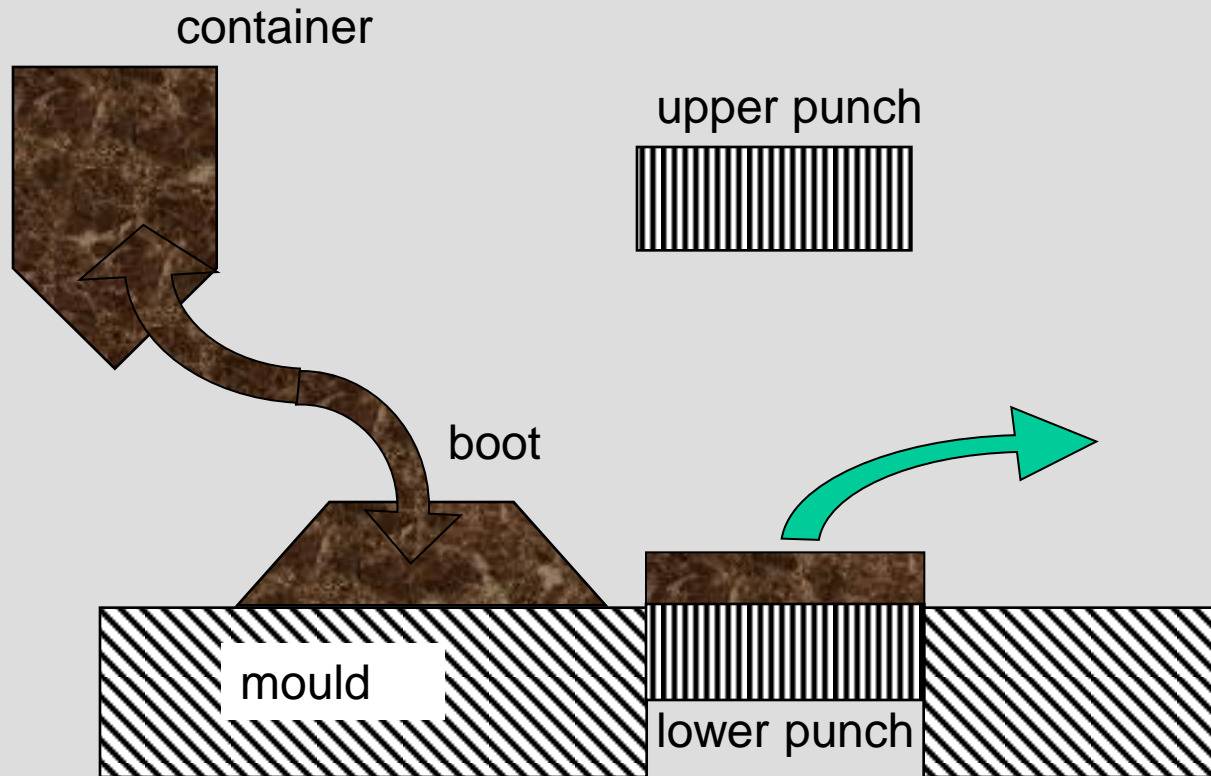
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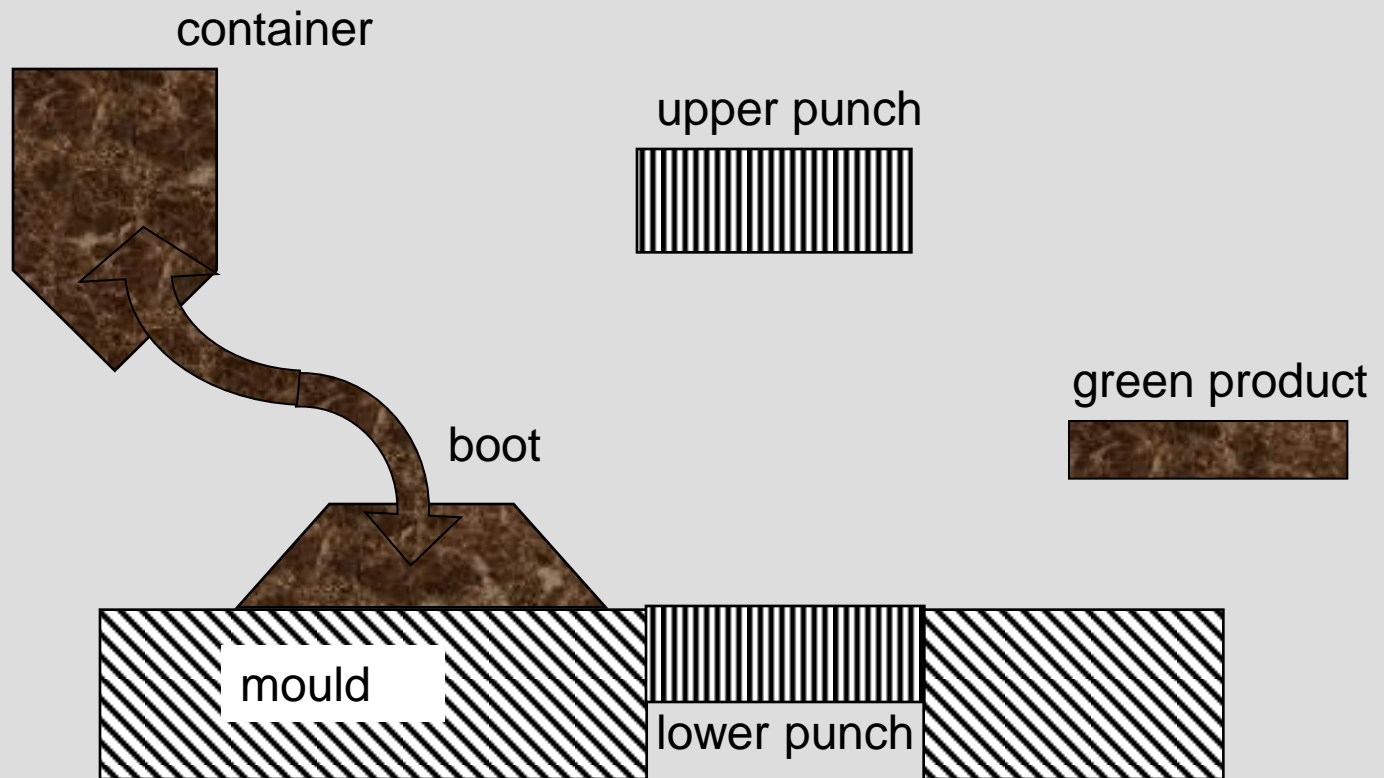
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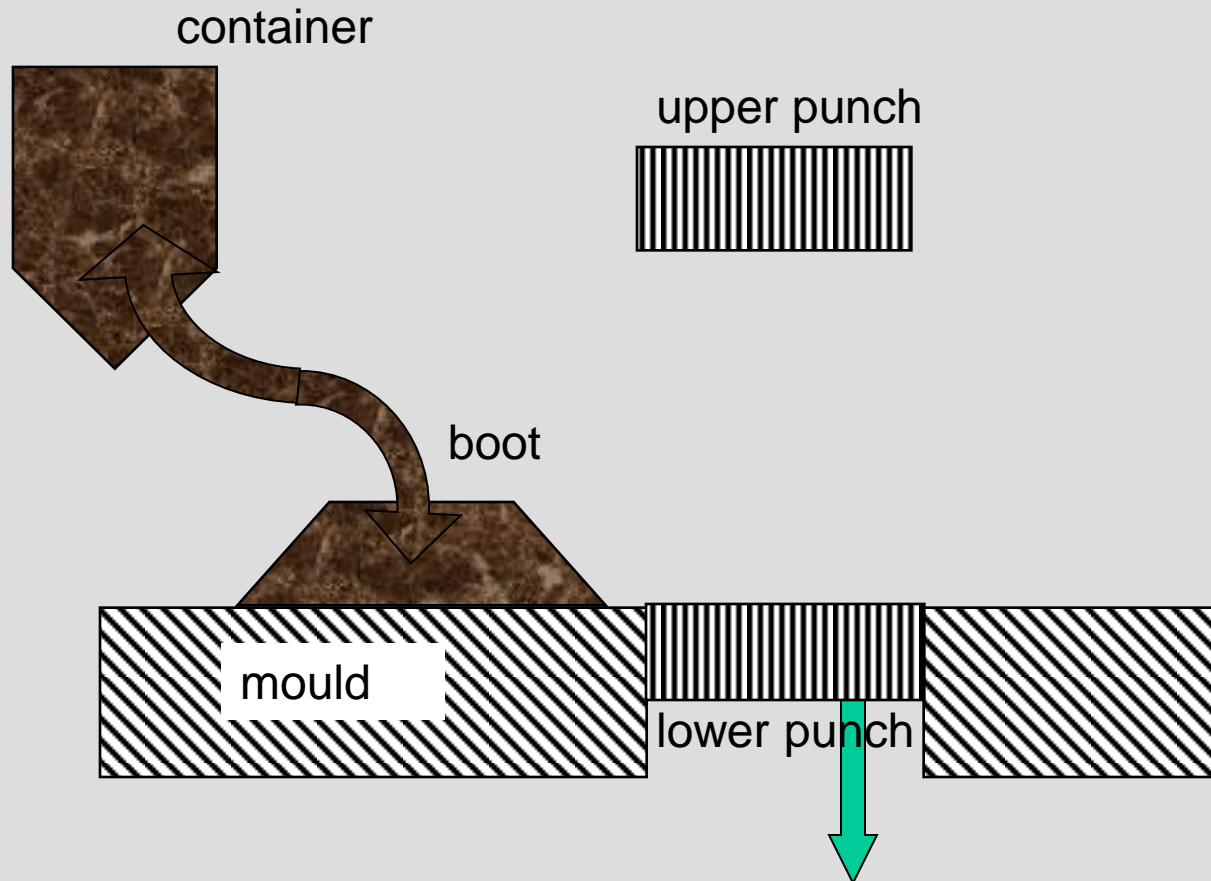
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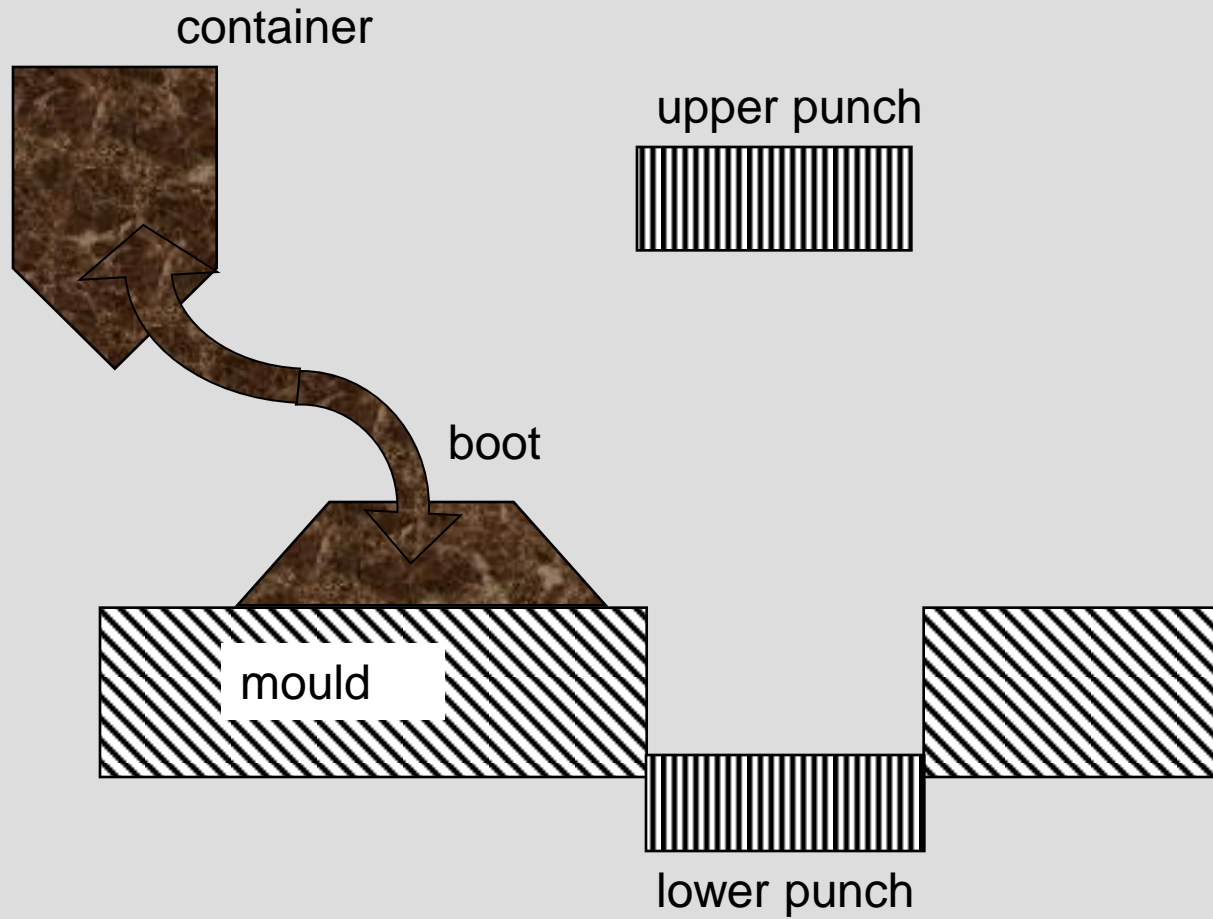
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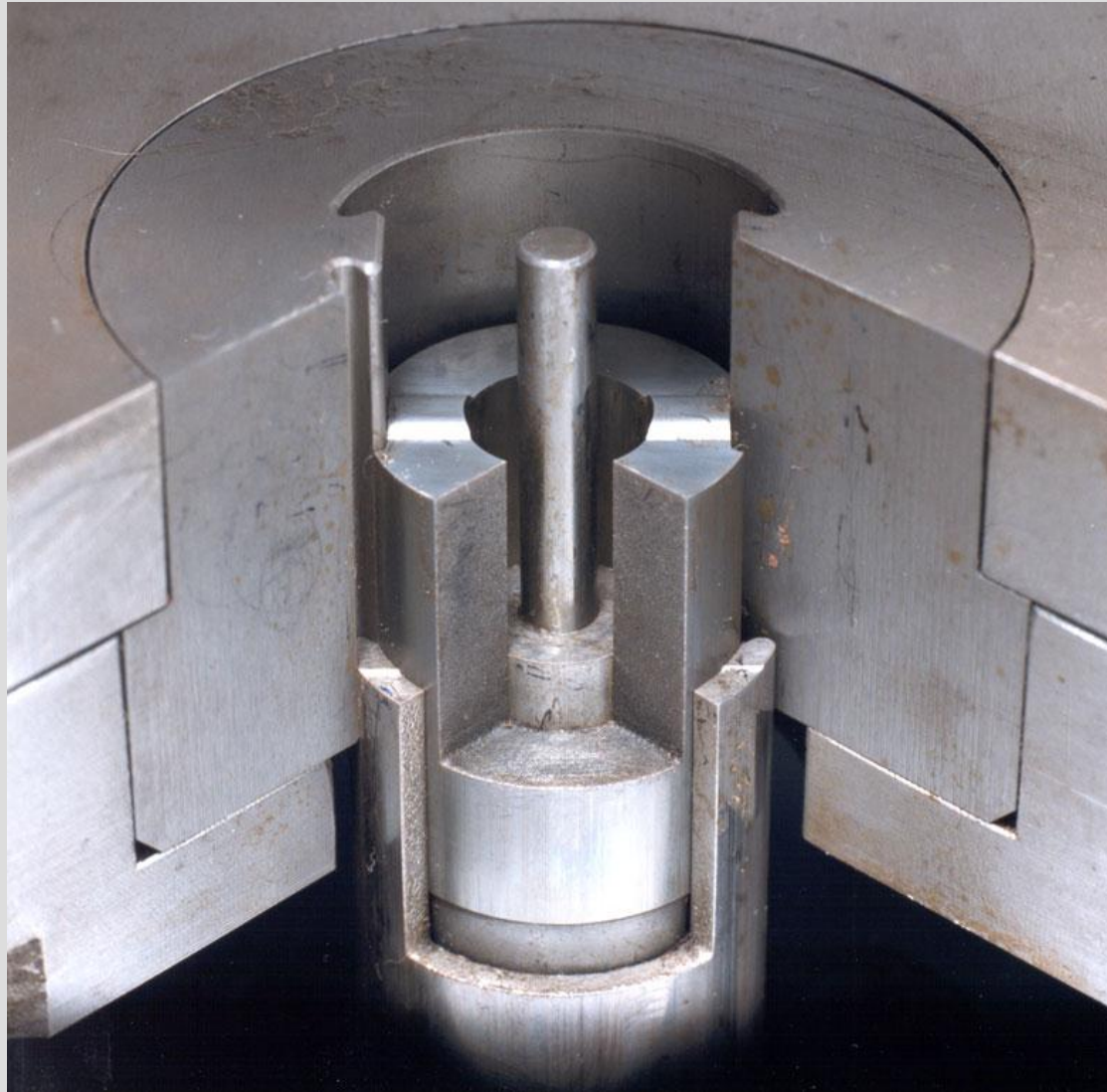
Pressing



Pressing



Example of pressing punch (pot core)

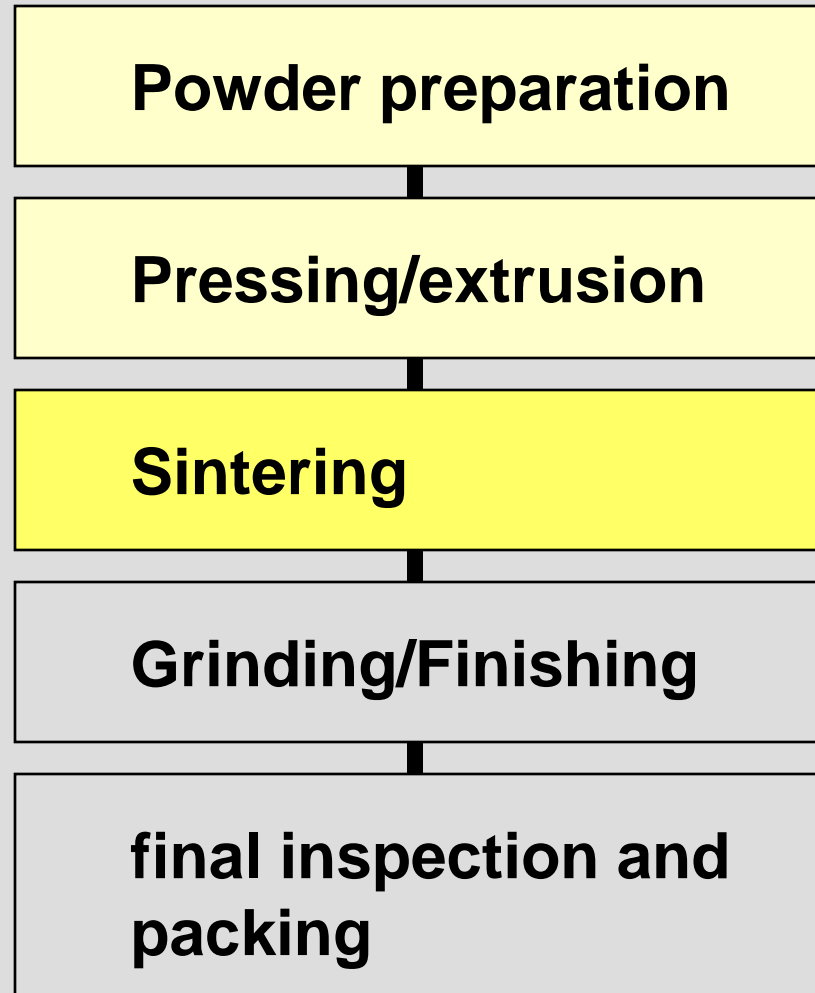


Example of pressing machine

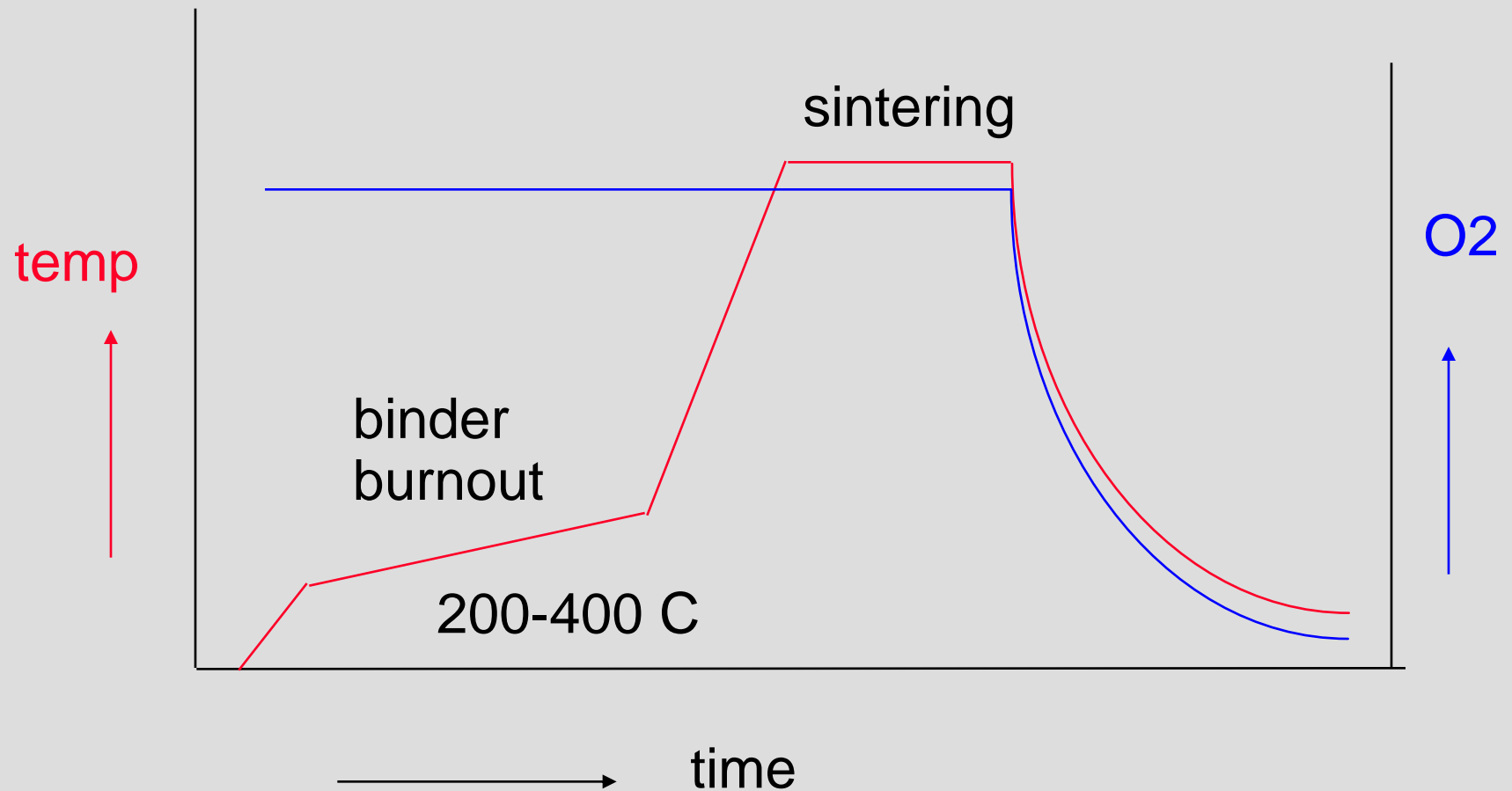
In this case a 50 tons press
in our Polish factory



flowchart production



Sintering curve ferrite products



Sintering process

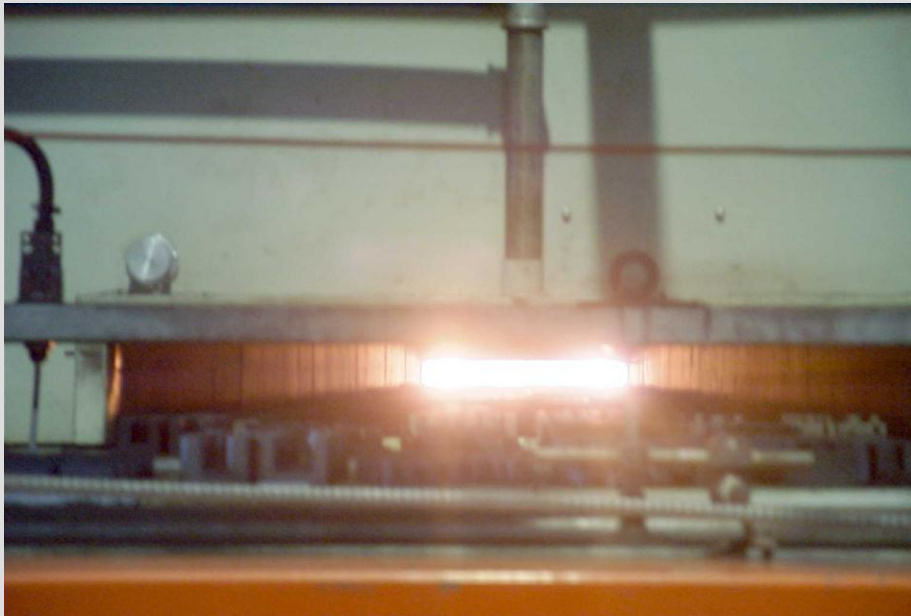
**Racks with products for
the Batch sintering kiln**



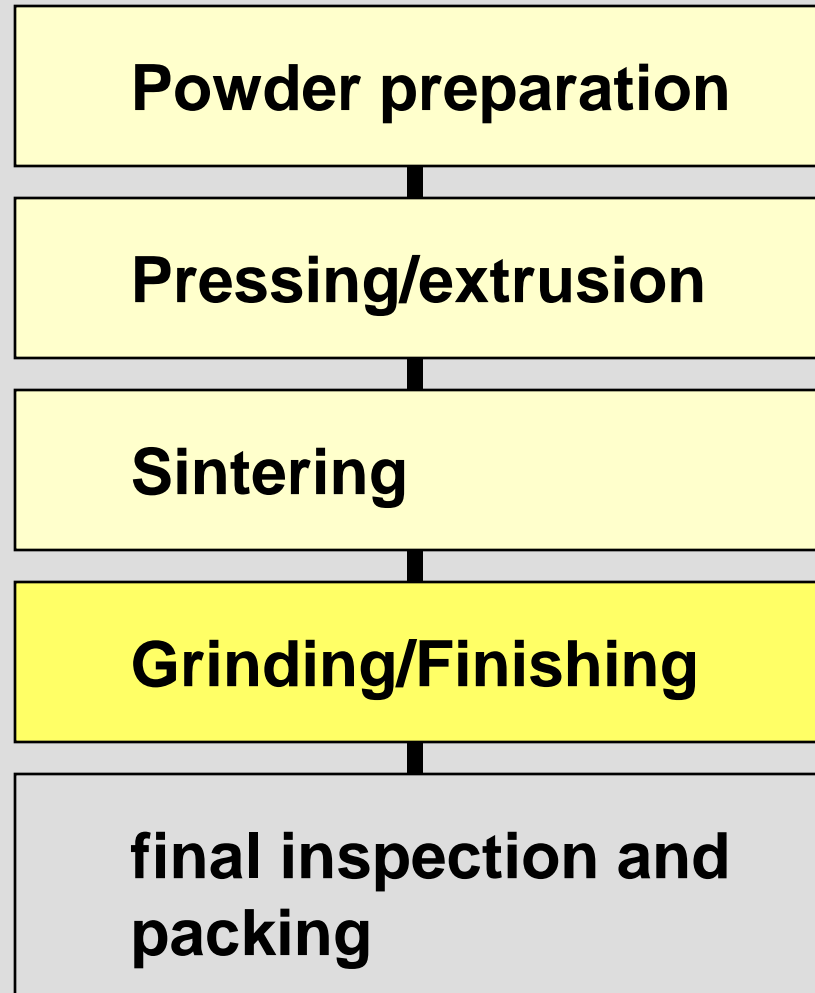
Batch sintering kiln



Tunnel Kiln

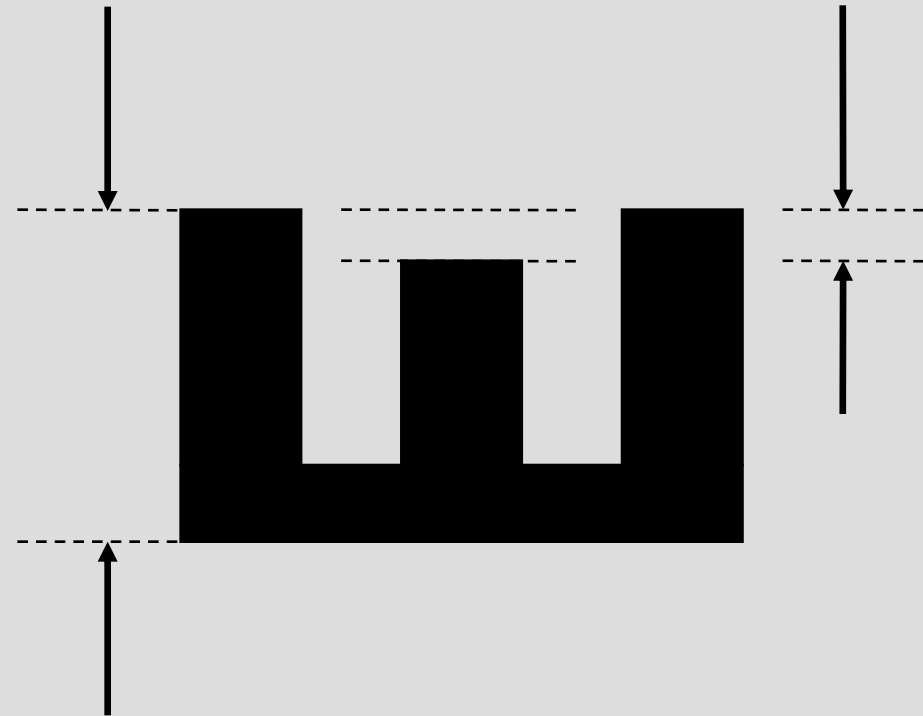


flowchart production



Grinding process

- diamond tools
- upper and lower surface
- several grinding machines
- polishing-process
- airgap



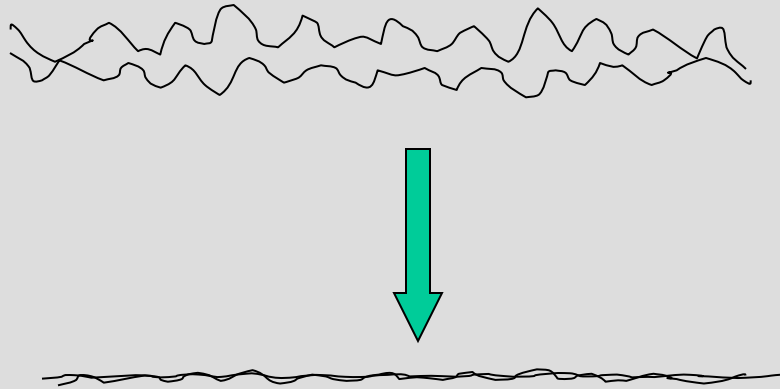
Batch Grinder



Through feed Grinder



Polishing



Finishing

Toroids

- **Deburring**
- **Coating**
 - Nylon
 - Epoxy
 - Parylene
 - Caps
- **100% sorting out**
- **Gapping**

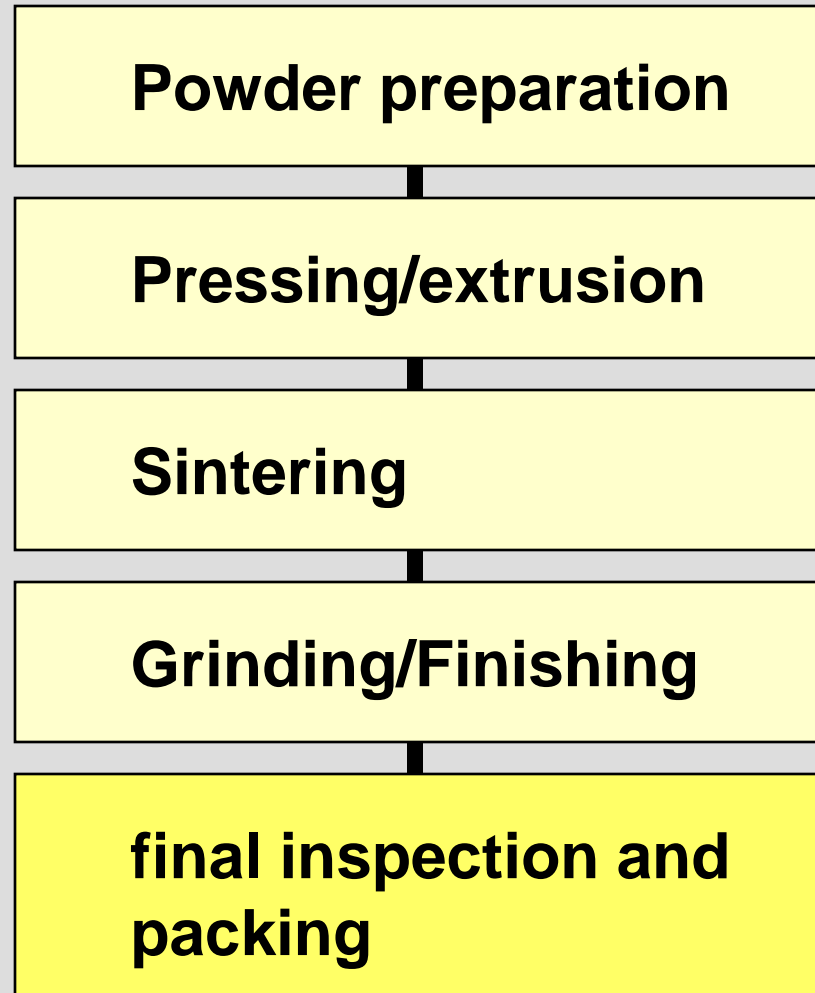
Rods

- **Cutting**
- **Centreless grinding**
- **Parylene coating**
- **Selection in L groups**

Wired products

- **Round wire**
- **Flat wire**
- **Tape & reel**

flowchart production



Final inspection and packing

- In line process- and products inspections
- Final inspection
- Packing
 - Blister
 - Booklet
 - Tape on reel

Packing



Packing



Packing



Warehouse



Transport to Customer

