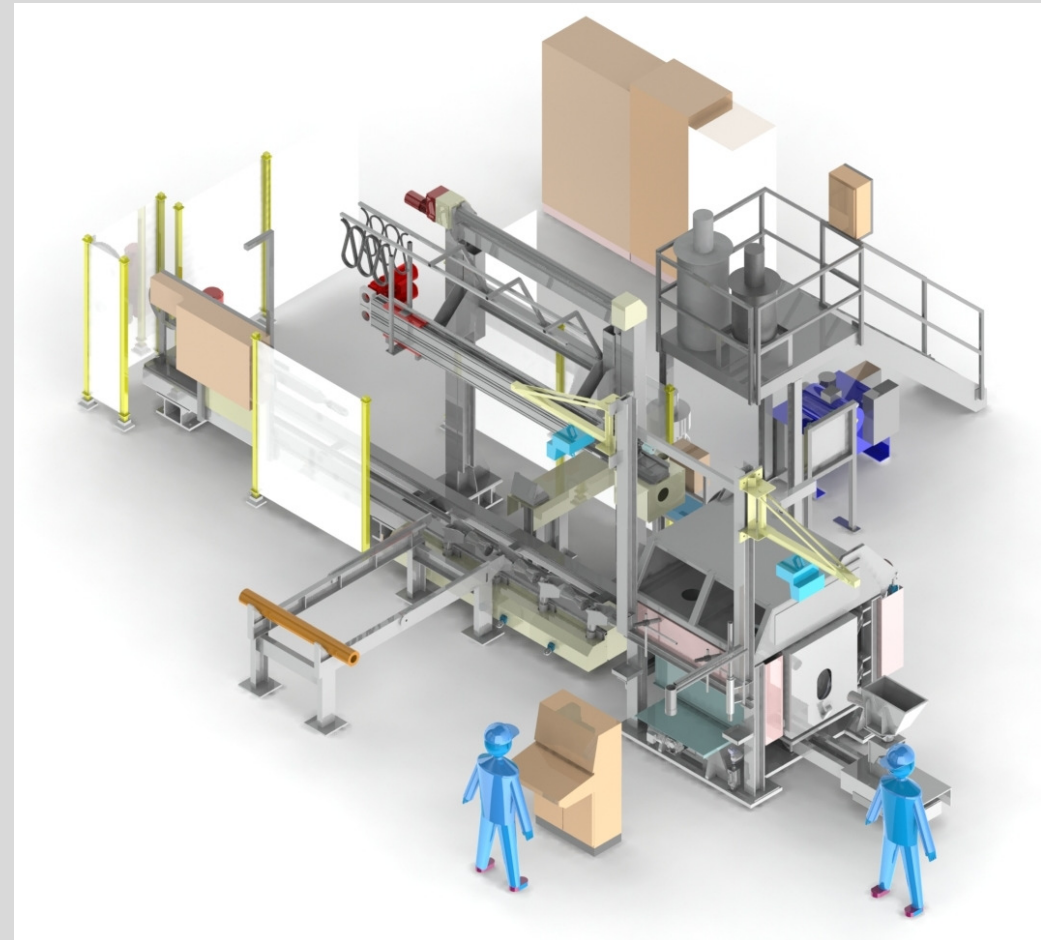
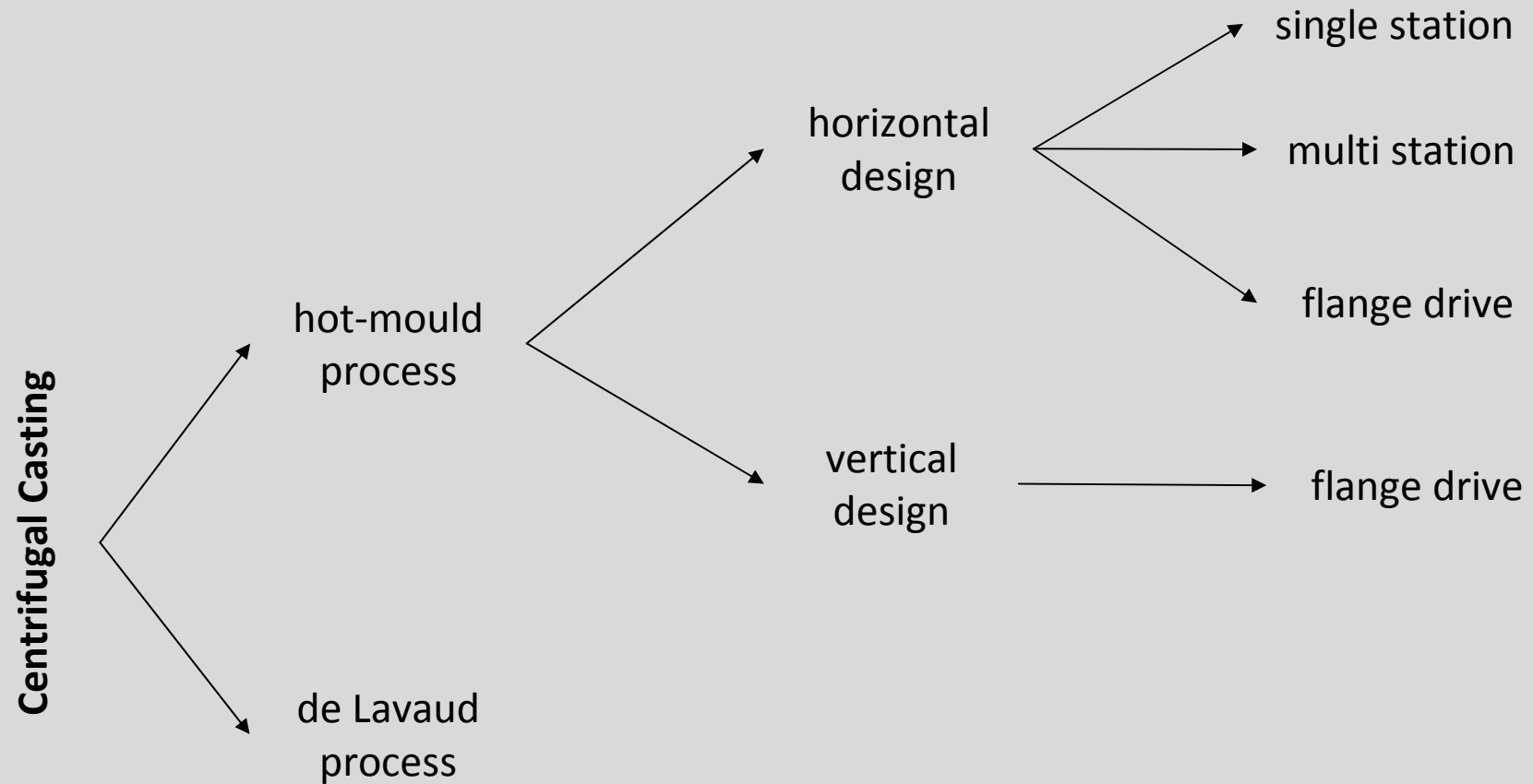


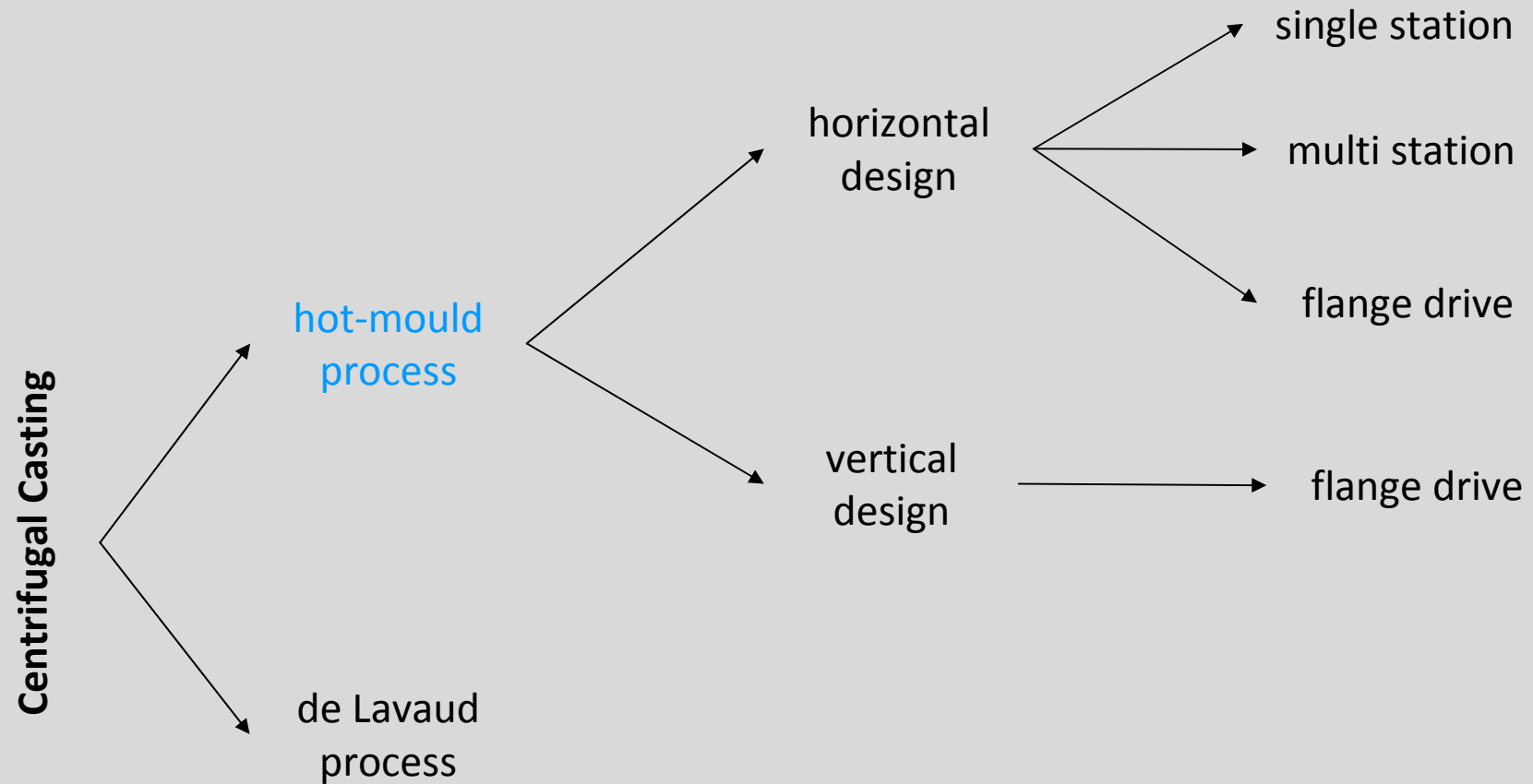
Centrifugal Casting

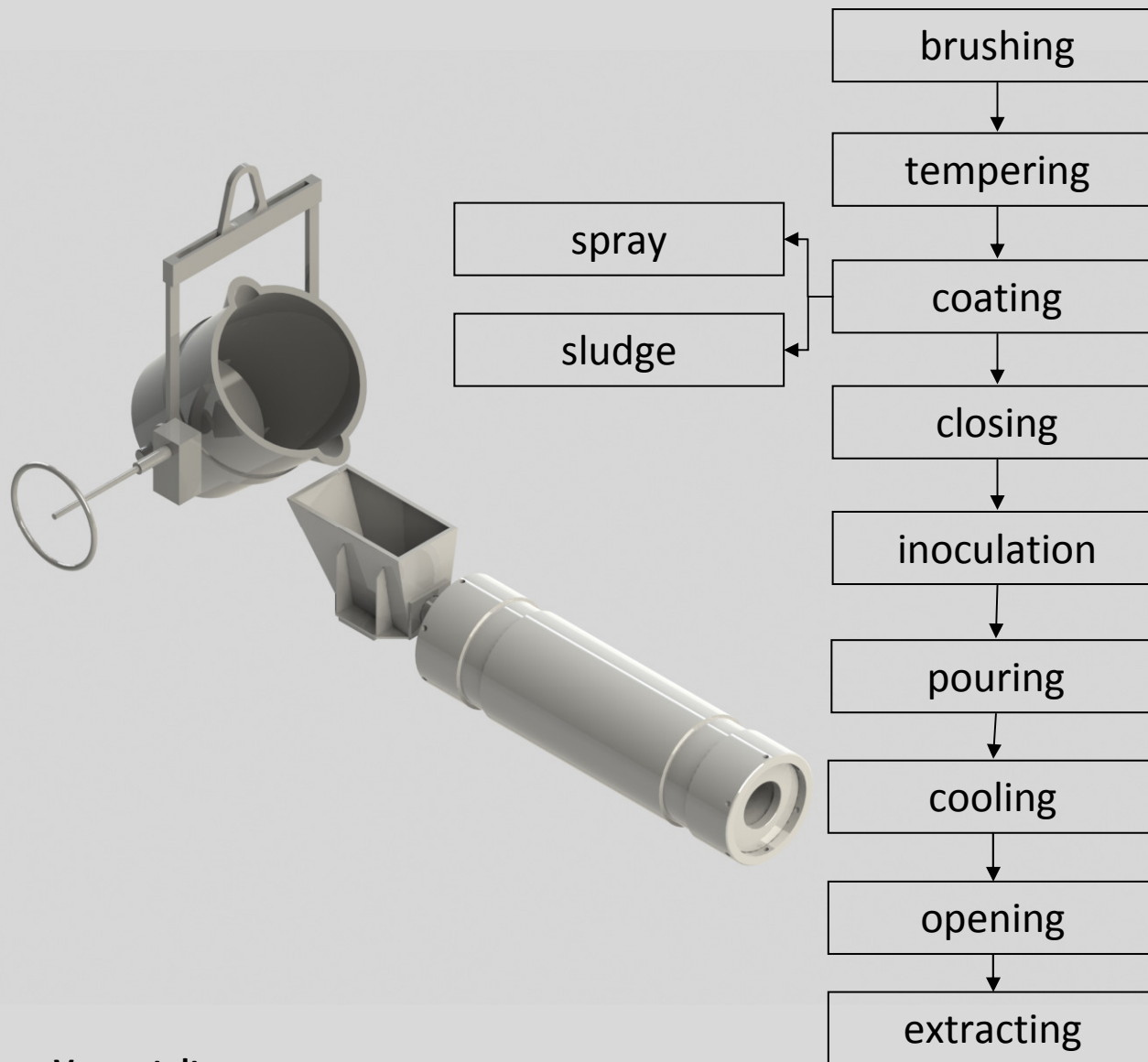
for cast iron, steel and
non ferrous materials

B.ENG. M.Semmler

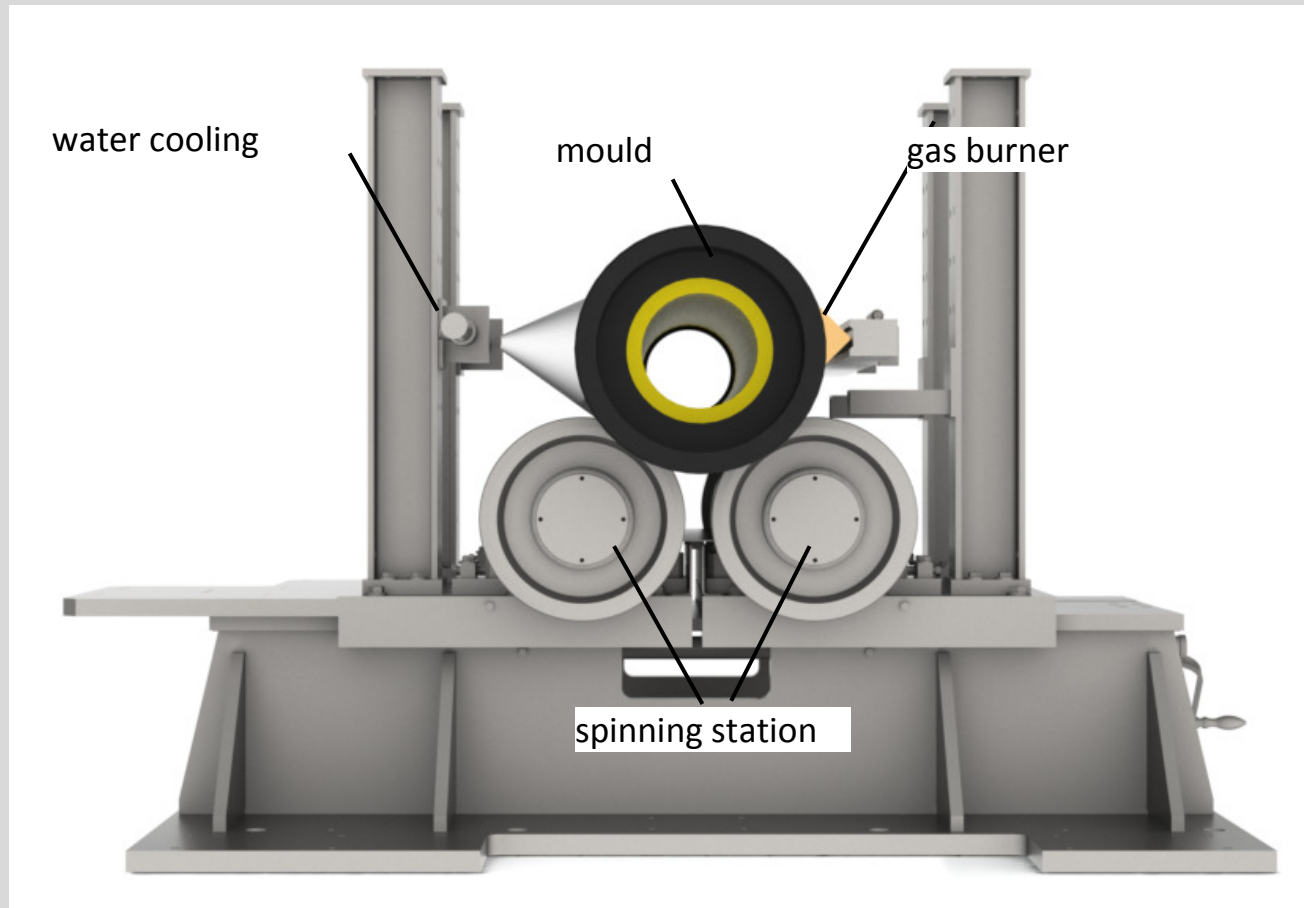




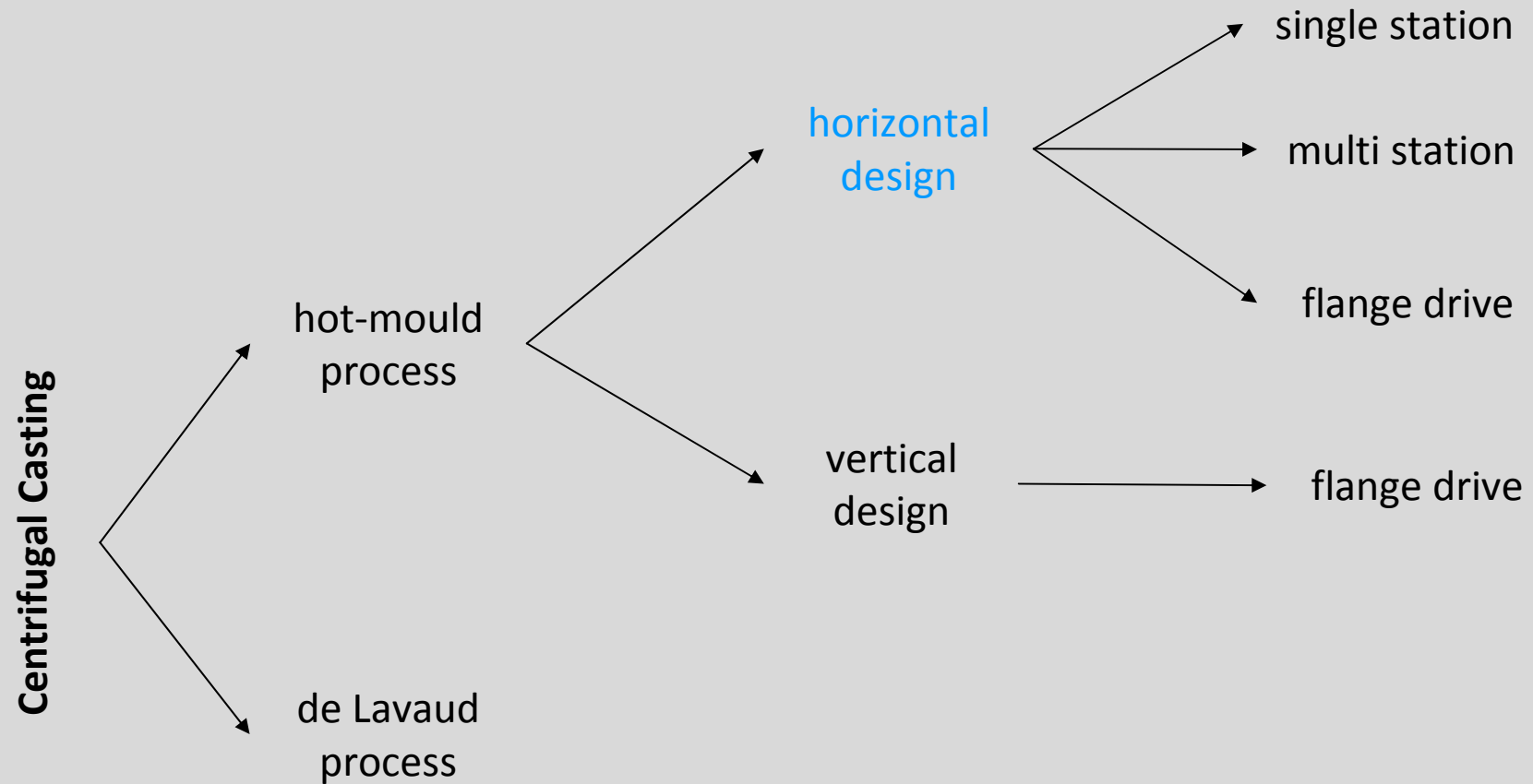


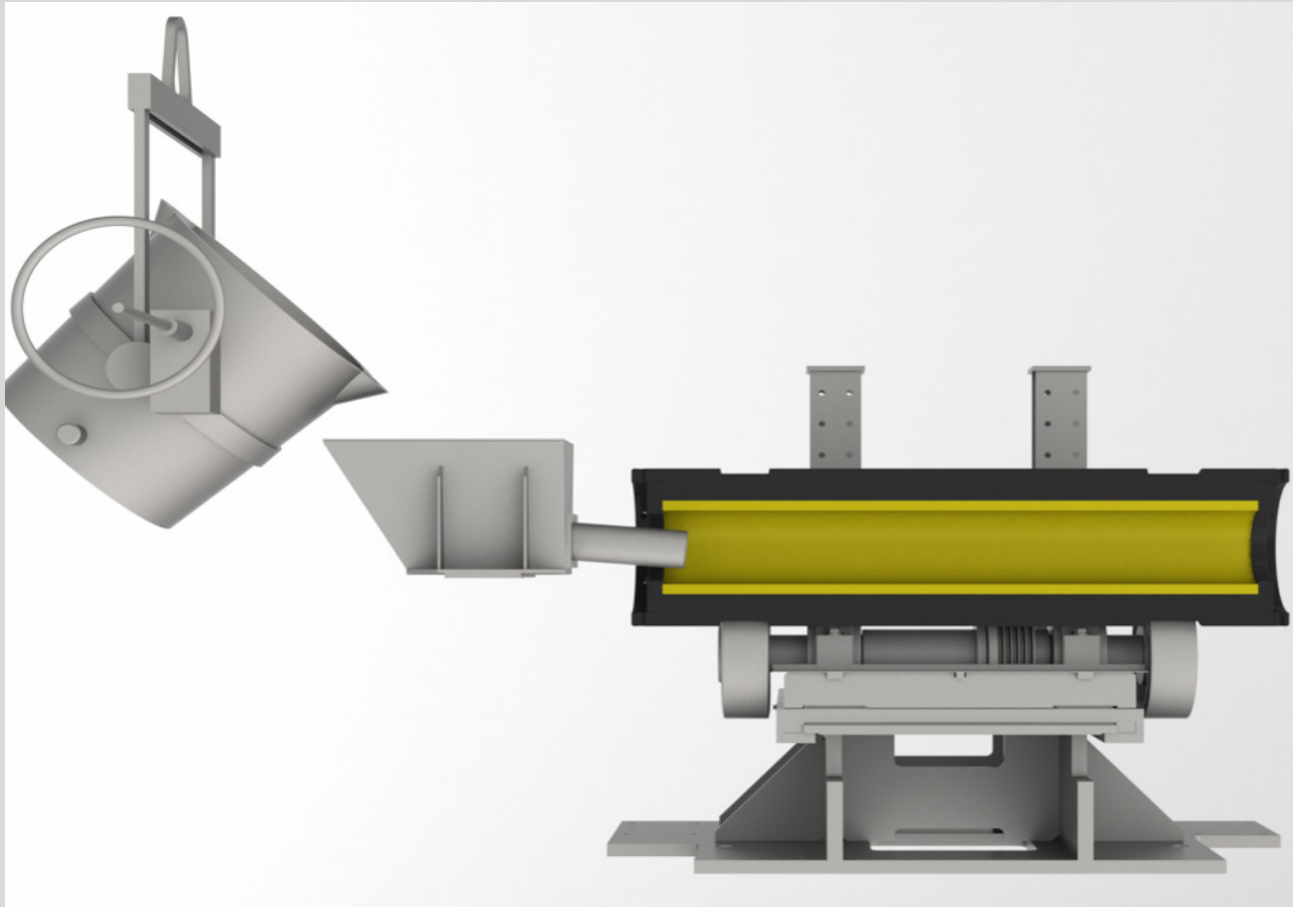


- ▶ the sequence of operation is equal on every type of machine
- ▶ the level of automation and the layout are variable
- ▶ the steps of these sequences have to pass through in this sequence
- ▶ the quality can be influenced by setting the parameters of each step

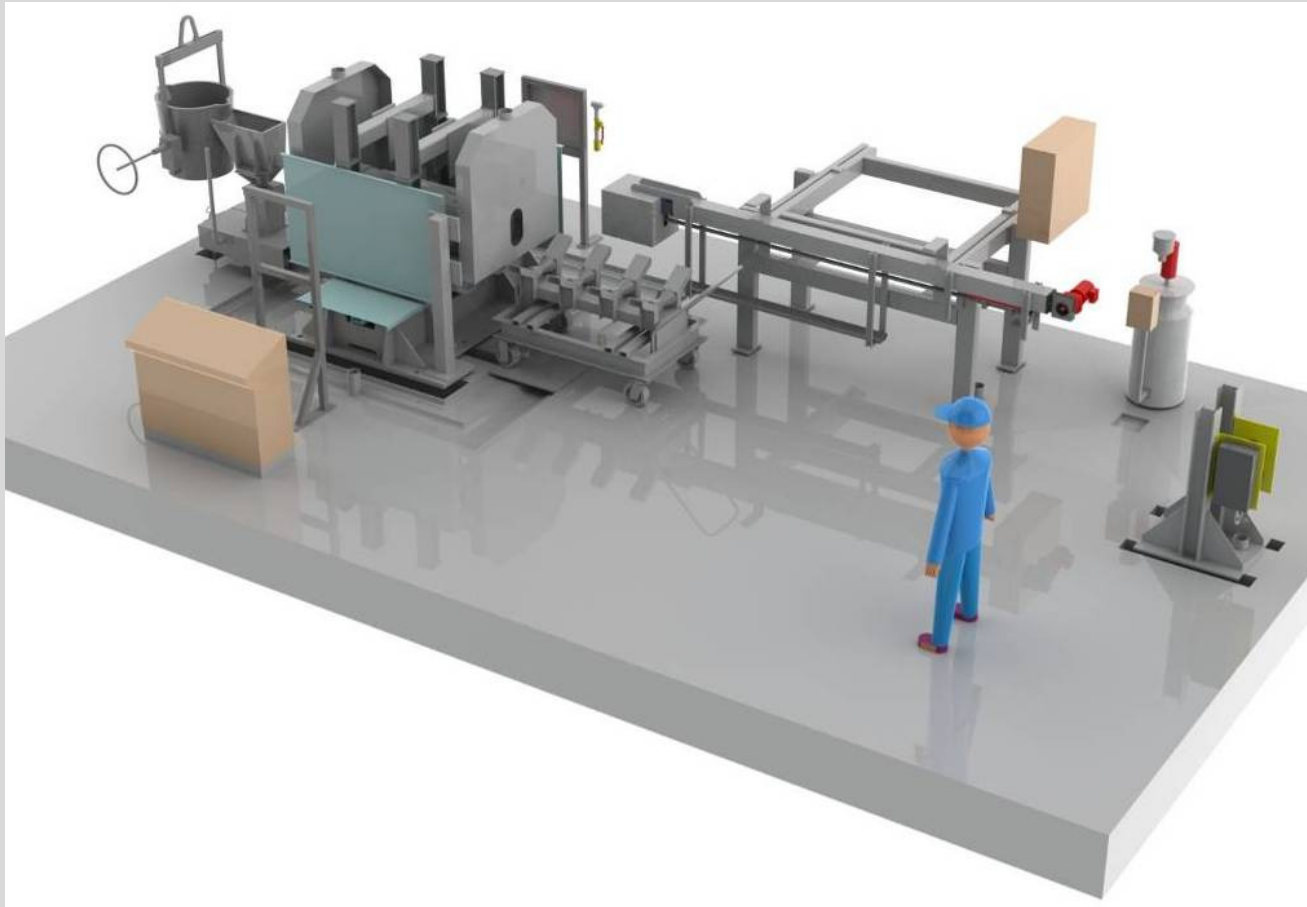


- ▶ the mould has to be preheated up to 200- 300°C
- ▶ coating of the hot mould with a special wash
- ▶ can be used for cast iron, steel or non-ferrous

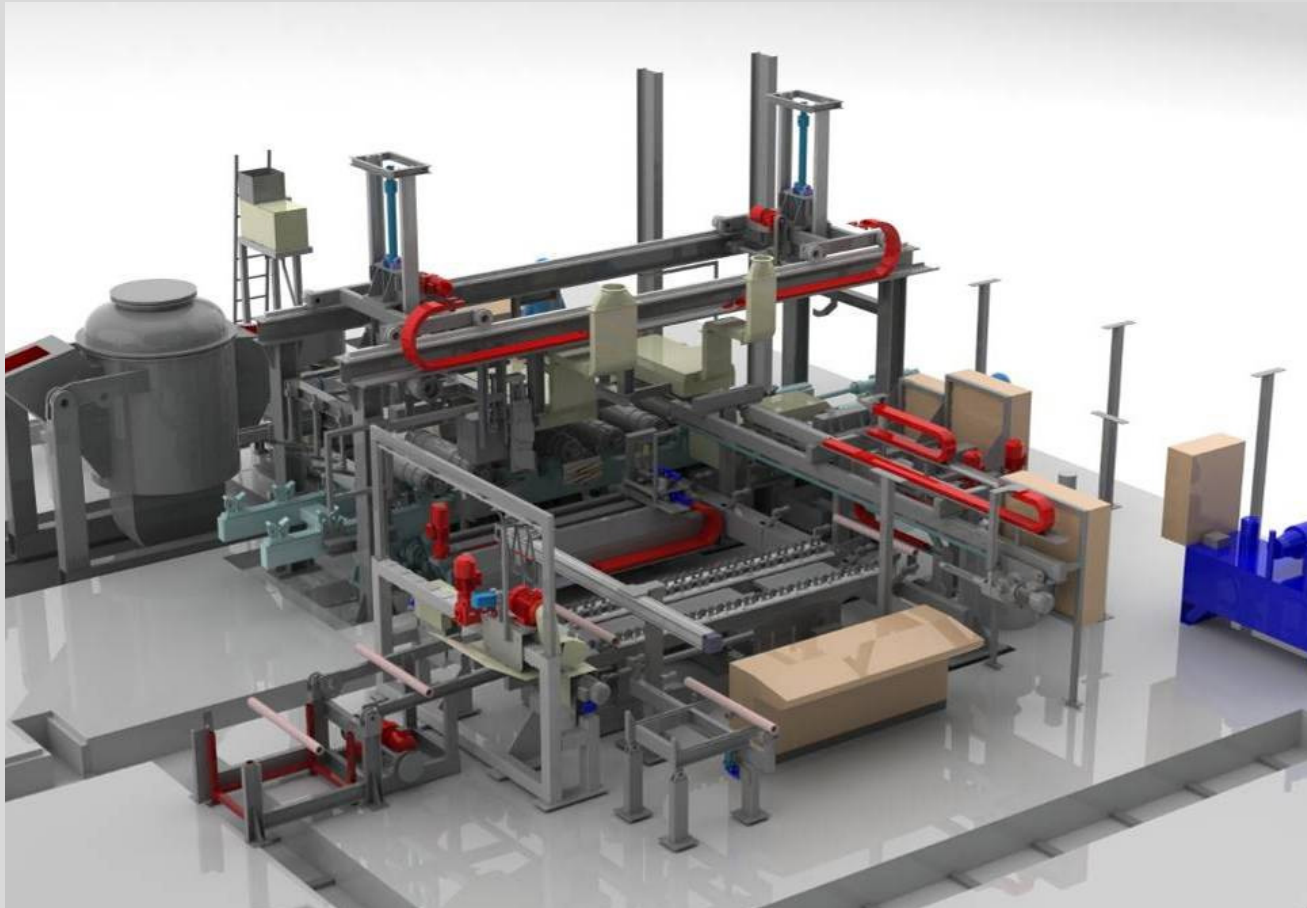




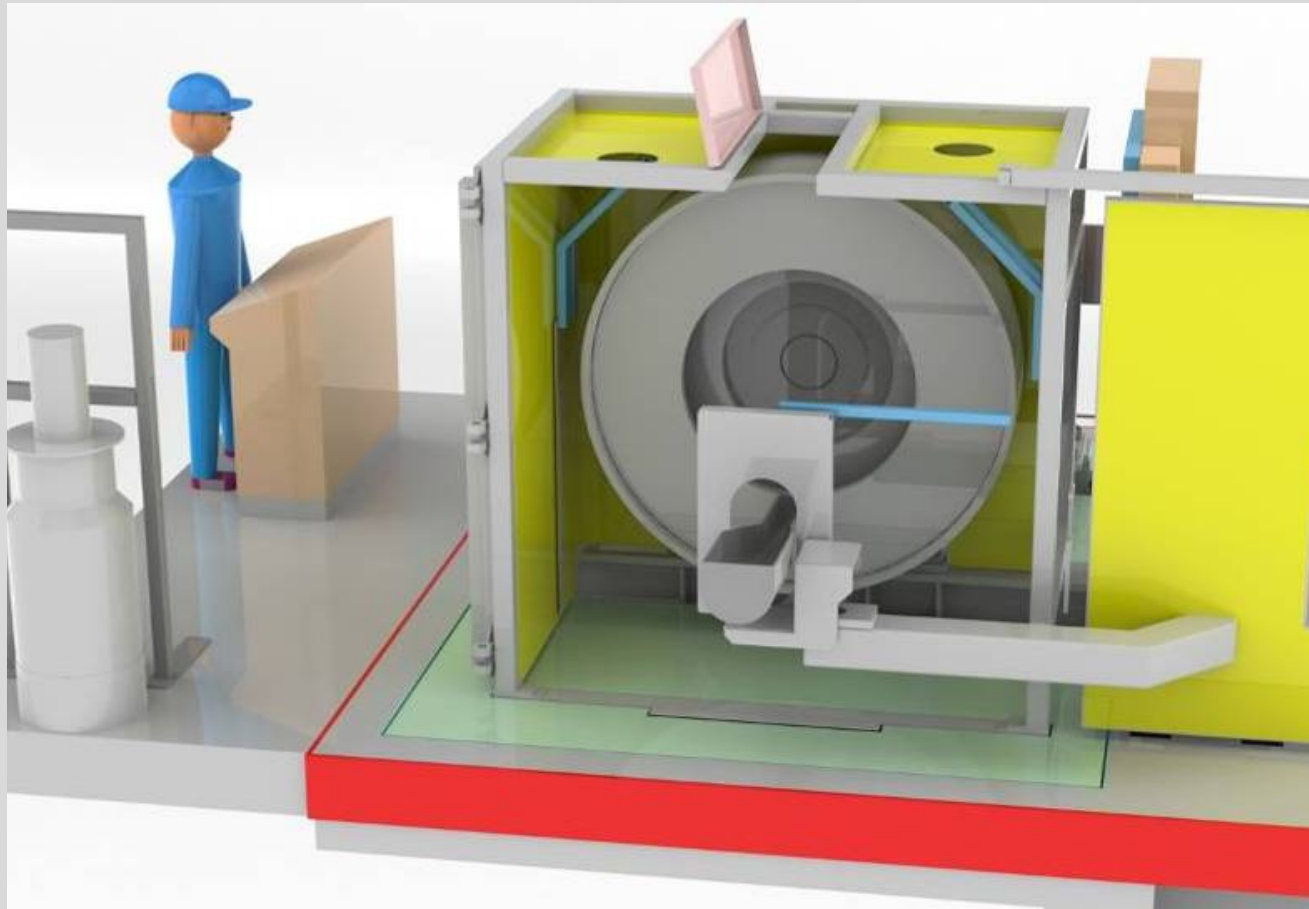
- ▶ cylindrical inner surface
→ min. machining allowance
- ▶ length up to 6000 mm
- ▶ diameter up to 2000 mm
- ▶ machine design and layout is depending on the requirements of product and process



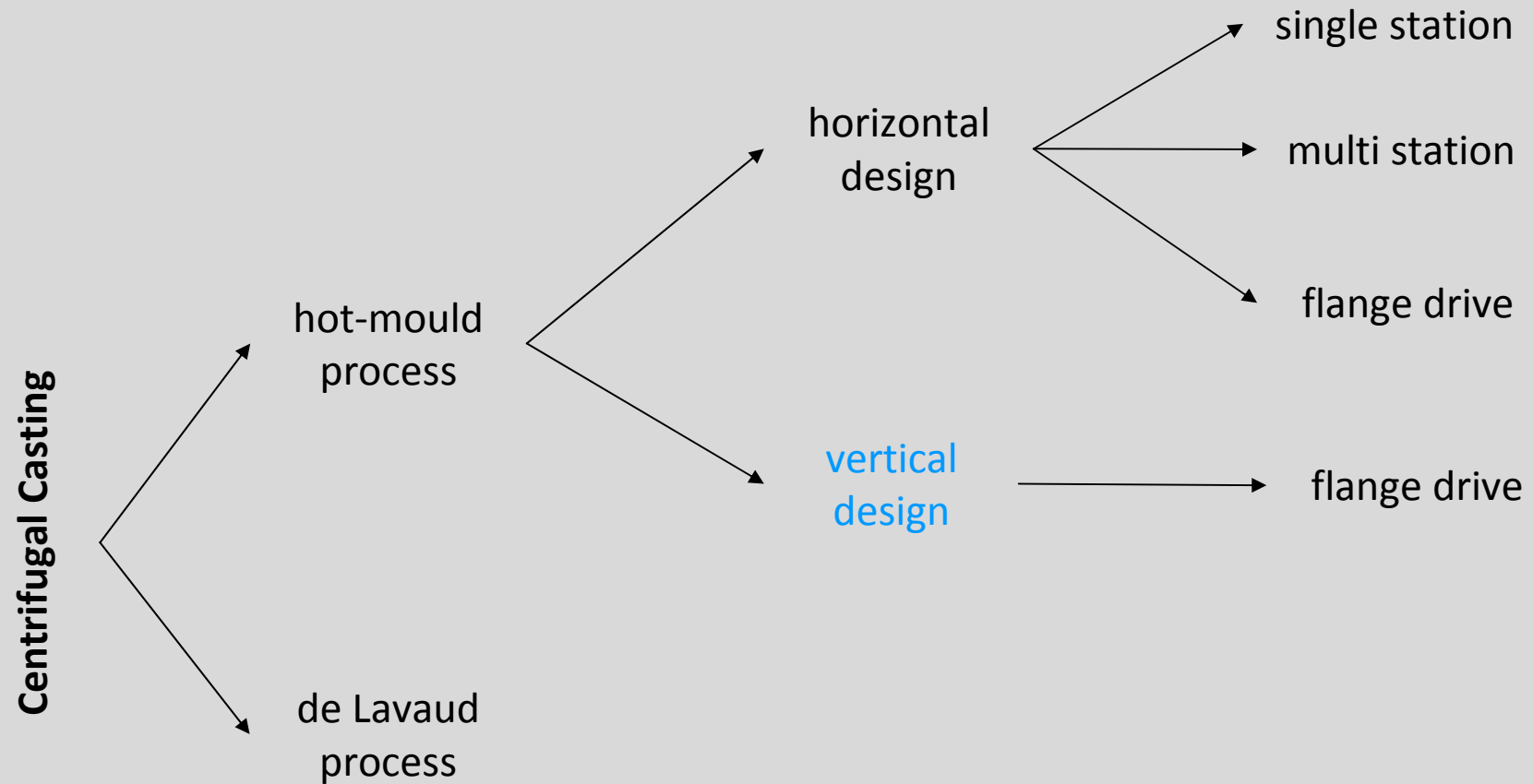
- ▶ less output
- ▶ high flexibility
- ▶ different grades of automation
- ▶ high level of variation
- ▶ production cycle: chronologic



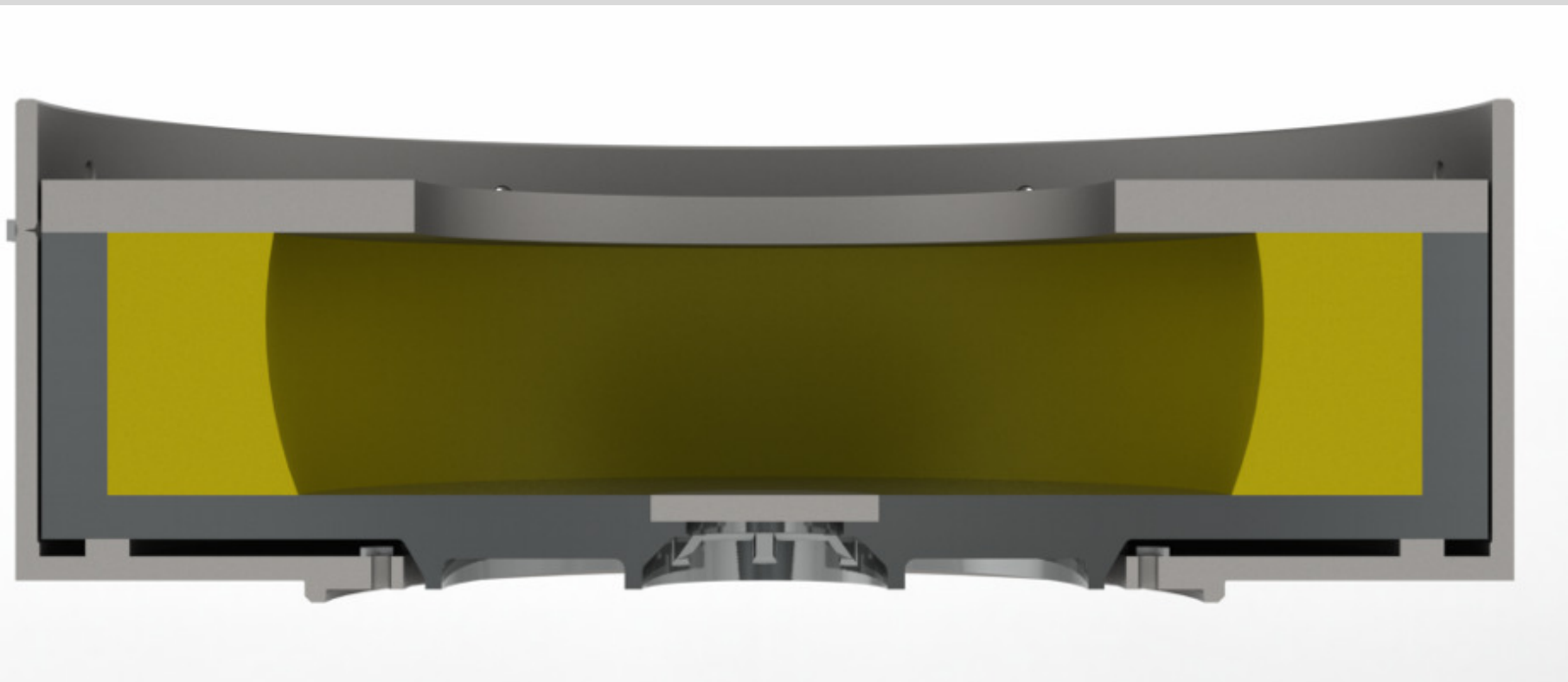
- ▶ high output / mass production
- ▶ full automated with process control system and visualisation
- ▶ data exchange possible
- ▶ layout exactly designed on requirements
- ▶ production cycle: simultaneously

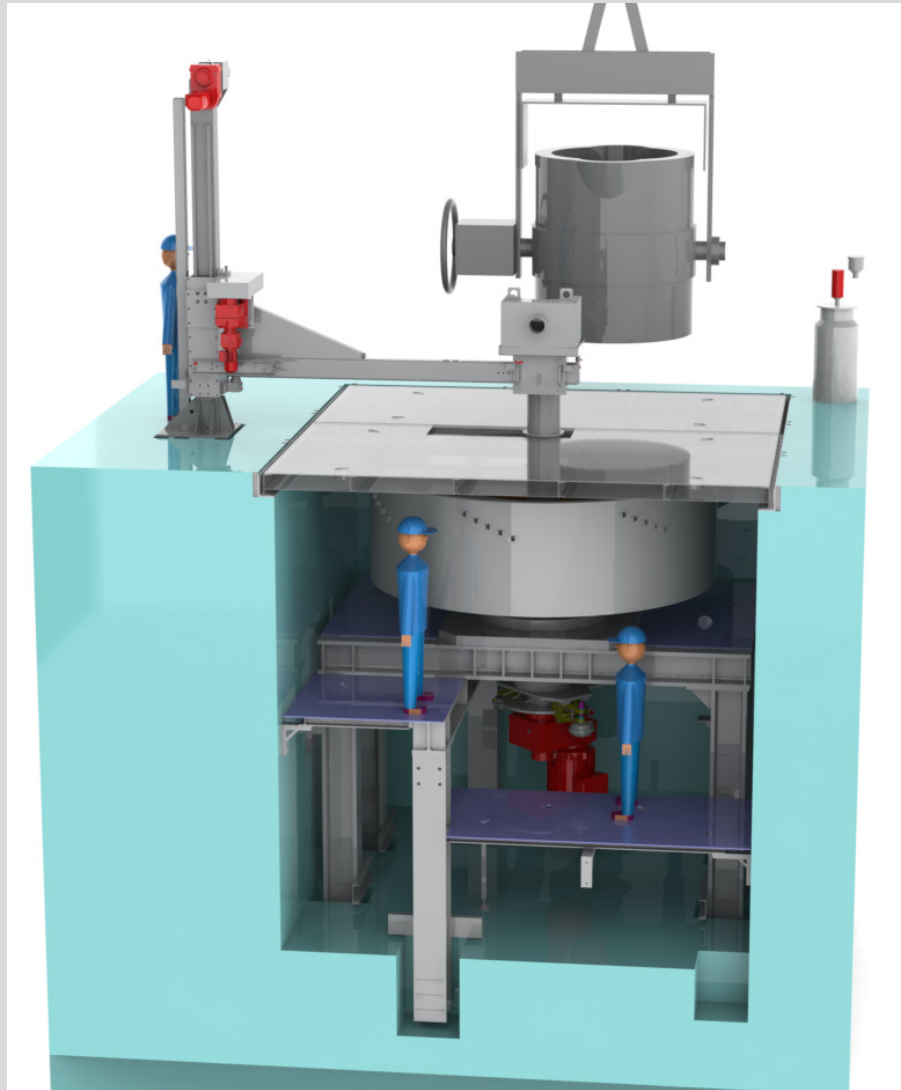


- ▶ less output
- ▶ for short bushes
- ▶ diameter range
50 mm – 2000 mm
- ▶ weight up to 4000 kg
- ▶ different grade of
automation
- ▶ high level of variation
- ▶ production cycle:
chronological

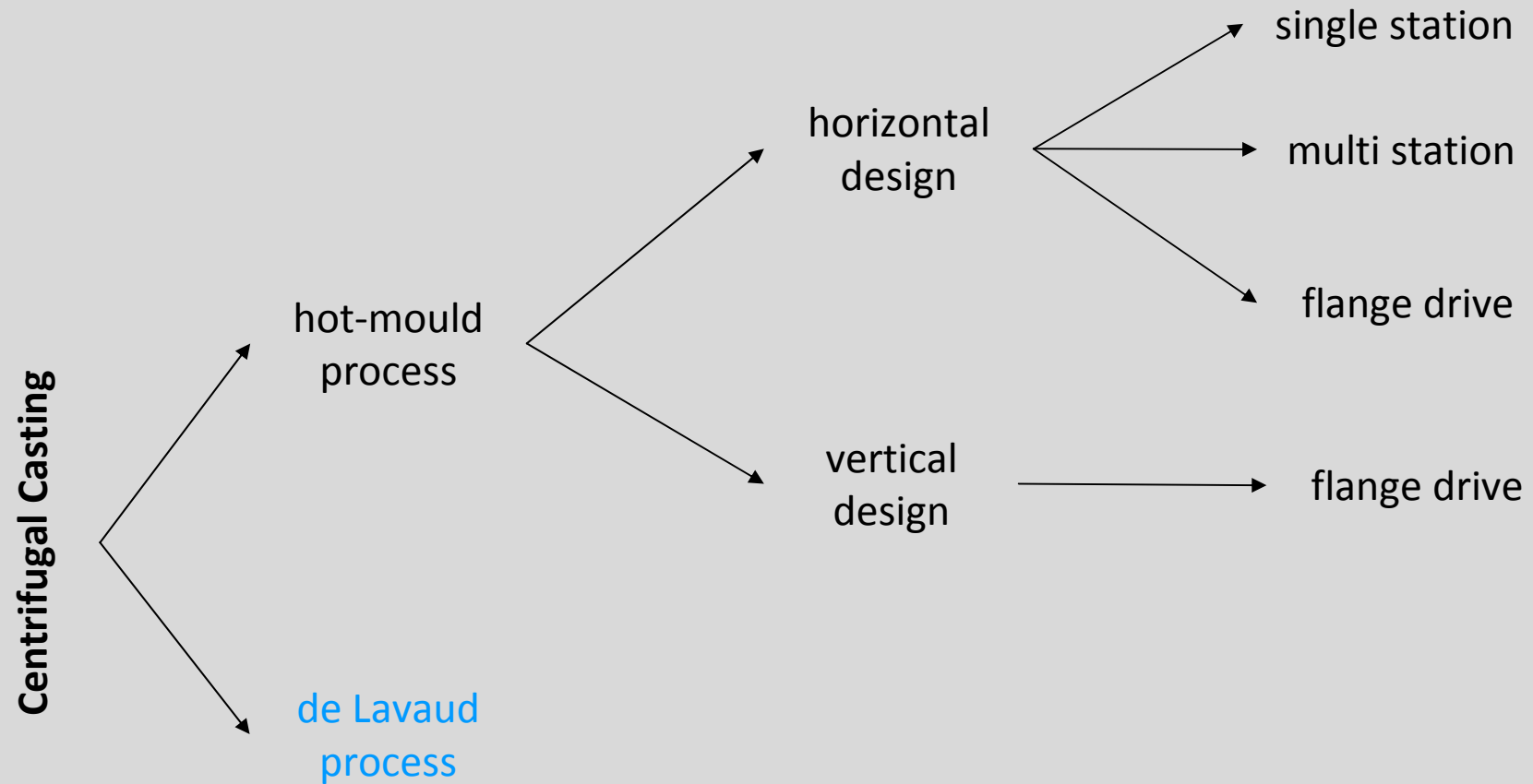


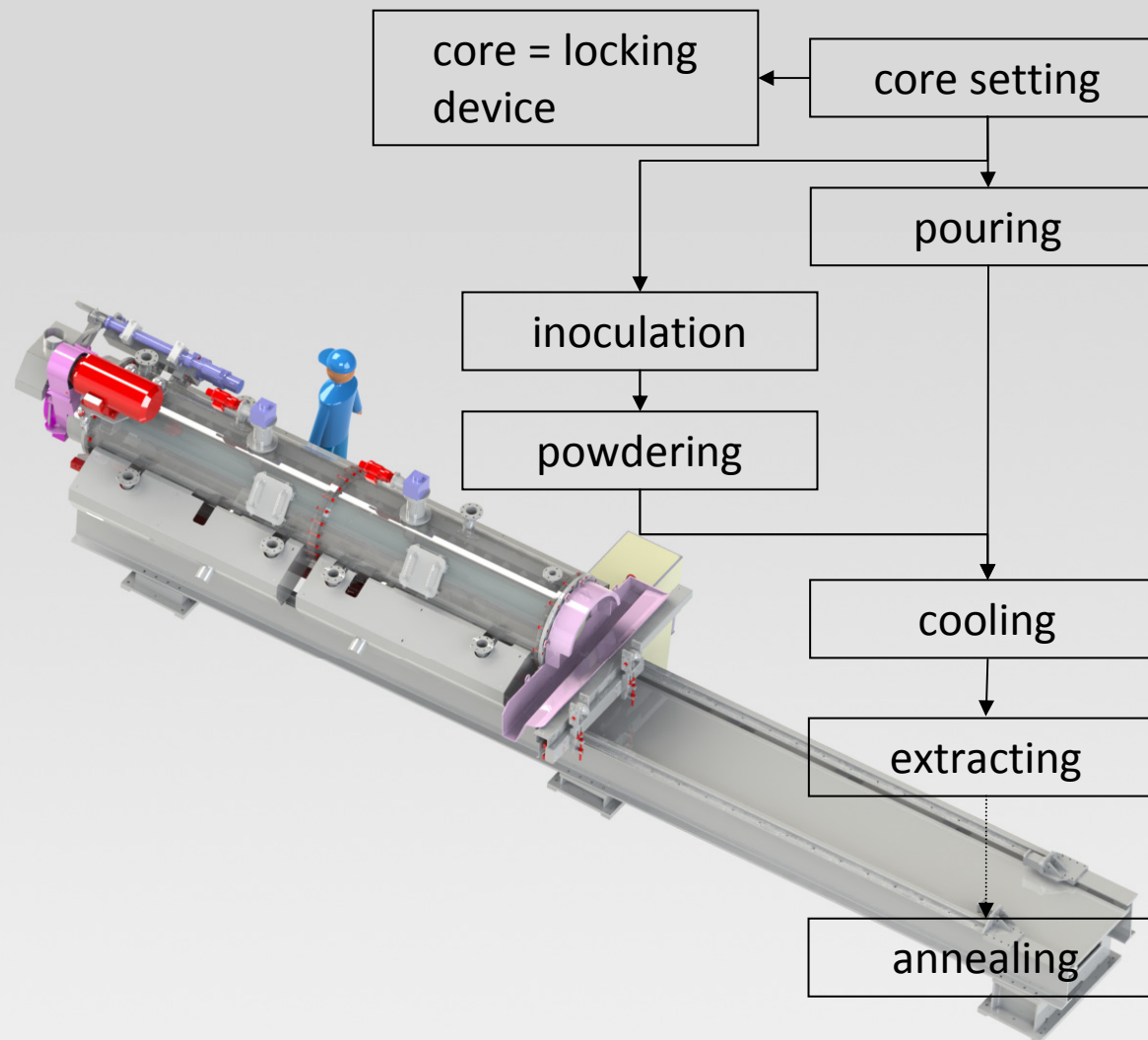
- ▶ parabolic inner surface → higher level of machining allowance
- ▶ height of raw casting depending on diameters and material
- ▶ diameter up to 3000 mm
- ▶ machine design and layout is depending on the requirements of product and process





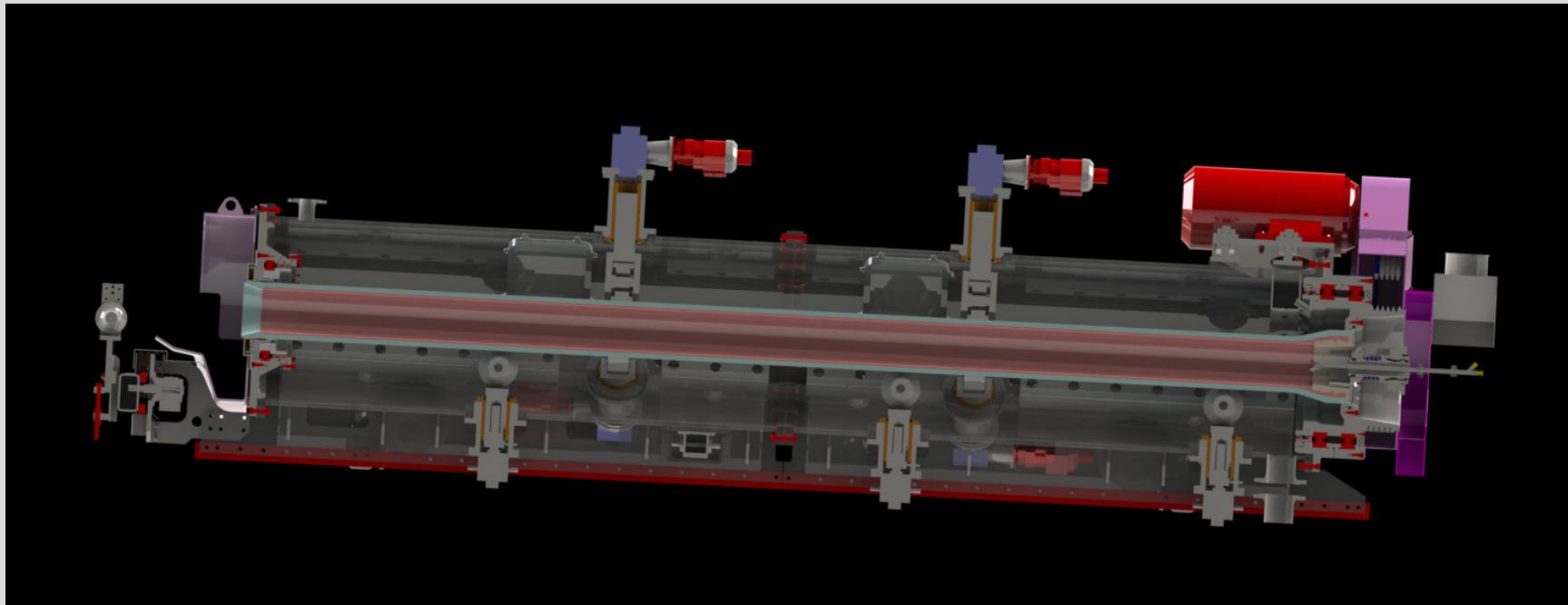
- ▶ less output
- ▶ different grade of automation
- ▶ production cycle: chronological
- ▶ casting weight up to 16 t

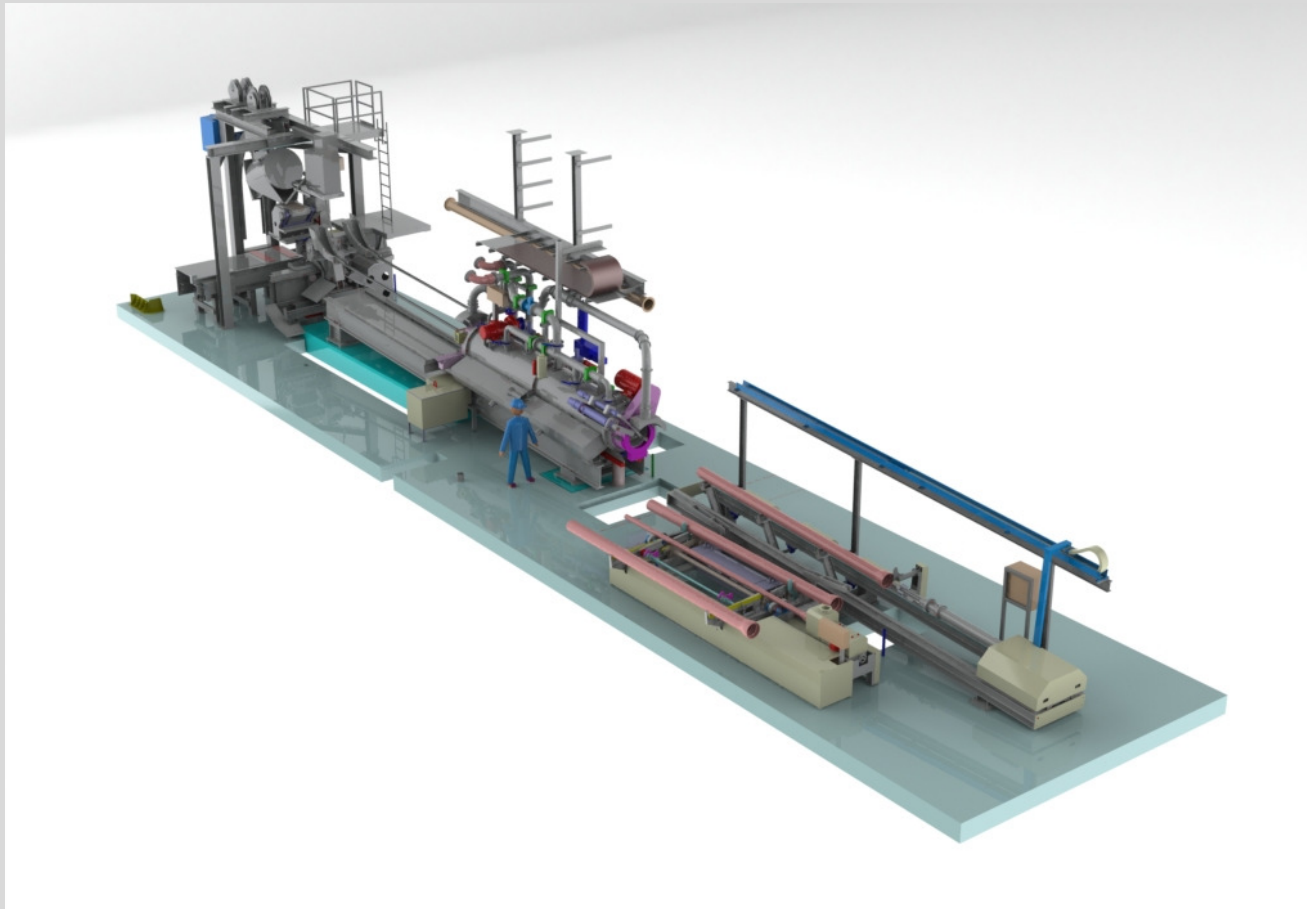




- ▶ the sequence of operation is equal on every type of machine
- ▶ the level of automation is variable
- ▶ the steps of these sequence have to pass through in this sequence
- ▶ the quality can be influenced by setting the parameters of each step

- ▶ the mould runs into a water jacket
- ▶ coating of the mould with a powder just before the liquid metal hits the mould
- ▶ the pipes are used for pressure water pipes
- ▶ diameter up to 1200 mm
- ▶ length up to 6000 mm





- ▶ solidification as chill
(rapid cool down when the melt is contacting the mould)
- ▶ downstream annealing process is required
- ▶ high production rate
- ▶ the quality and the wall thickness can be set by process parameters
- ▶ water cooling with a volumetric flow of approx. 200 m³ / h

Centrifugal Casting at Karlstadt plant

- ▶ 1913: foundation of plant Karlstadt, production of soil pipes (sand casting)
- ▶ 1949: first steps with centrifugal casting
- ▶ 1965: foundation of Engineering department (today KCC Company)
- ▶ 1967: production of socketless pipes using centrifugal casting machines
- ▶ 1993: installation of the high performance multistation machine A200/3000
 - ▶ diameter range 50 mm to 150 mm
 - ▶ length 3000 mm
 - ▶ capacity of 200 pipes / h (using two operators)
 - ▶ linked with the machining and the painting process in one line
- ▶ 1995: installation of research and development workshop
- ▶ 2012: co-operation with Düker's centrifugal casting plant Karlstadt
 - ▶ Consulting
 - ▶ support during maintenance
 - ▶ Research and development
 - ▶ Feedback from the production

R & D workshop Karlstadt

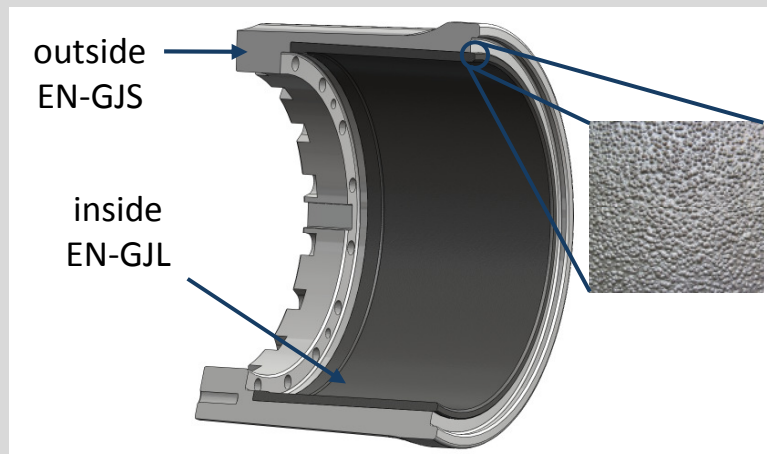
► capacity

- 1995: 500 kg MF-crucible furnace, material on request
- 2000: single station; OD 60mm – 350mm, min ID 45mm, length max. 1500mm
- 2010: flange drive machine; OD 60mm – 1000mm, min ID 45mm, length max. 600mm

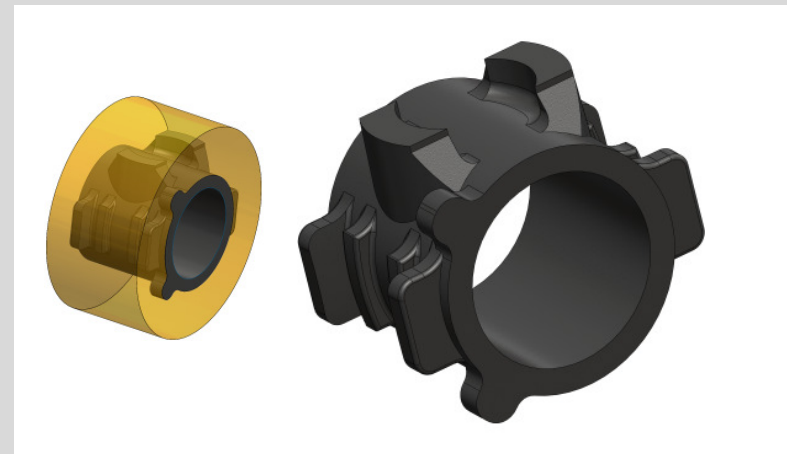
► support

- initial sampling
- research and development of process and materials
- production of small series
- centrifugal casting with outside shape by using sand cores
- compound casting with different material

compound casting



using sand cores



Thank you for your Attention!

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