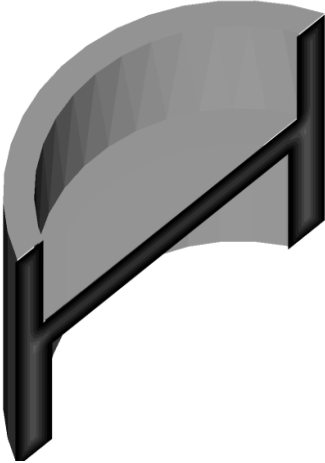
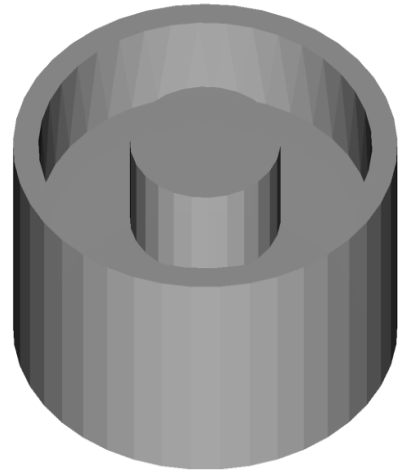


Brake Drum

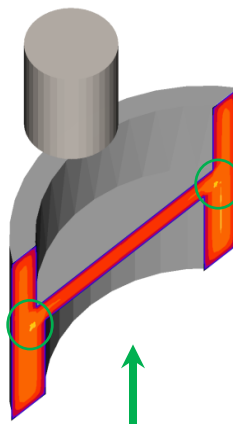
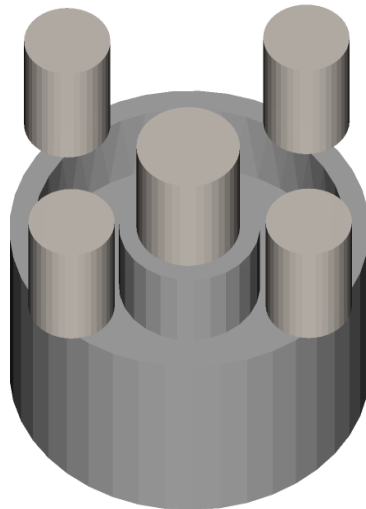
Cast Steel, Green Sand Casting

Case: A cast steel Brake drum casting of overall size 530 mm x 530 mm x 280 mm weighing 200 kg was in production using resin-bonded sand mold. Shrinkage defects were observed along the rim.



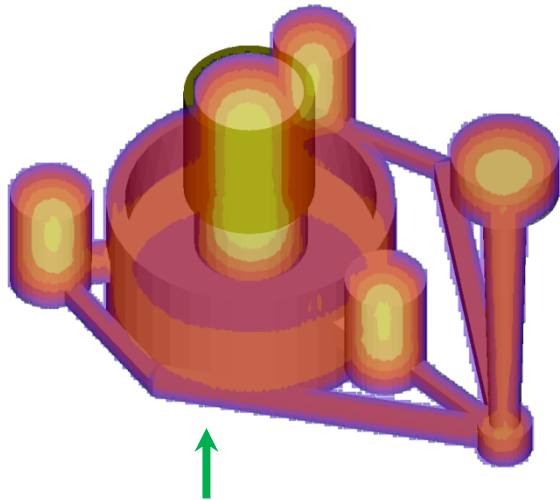
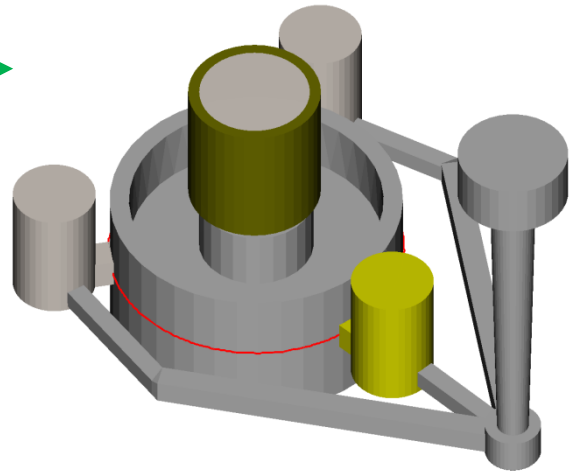
Thickness analysis of the part shows a thick region all around, corresponding to an inscribed sphere diameter of 50 mm.

Initial methoding of the casting included 5 top cylindrical feeders of 130 mm diameter and 150 mm height.

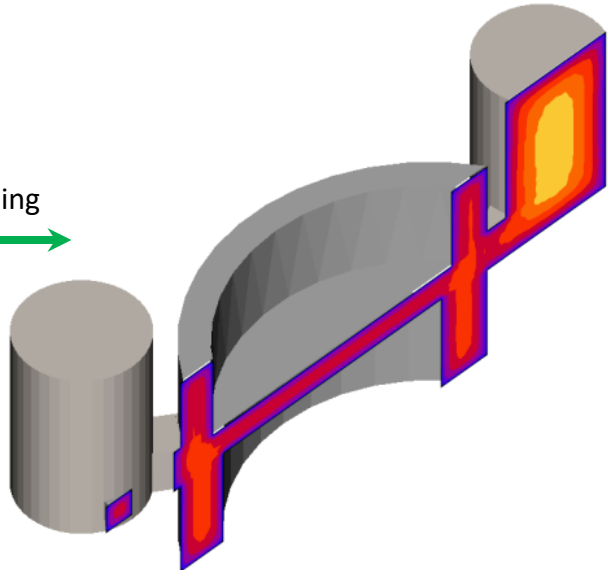


Solidification simulation of the casting indicates adequate feeder size, but the L-junction along the circumference reveal hot spots corresponding to the shrinkage defect observed in actual casting.

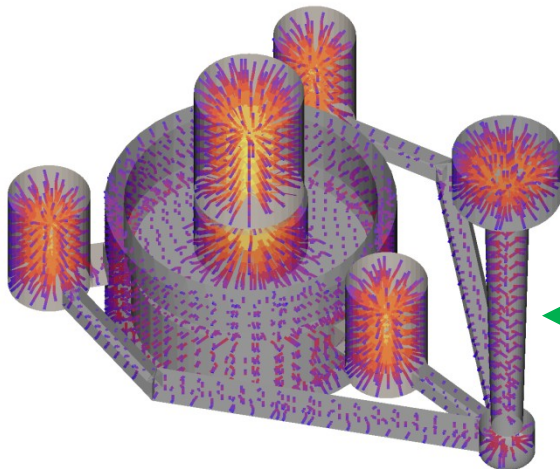
The methods layout was redesigned with side feeders of diameter 130 mm and height 150 mm along the side face. Gates are connected to all feeders to increase the feeding effect.



Solidification simulation of the revised methoding indicates all hotspots entirely in the feeders.



Feed path analysis confirms good directional solidification, with feed paths converging inside the feeders, leading to a defect free casting.



Summary: The revised methoding with 3 feeders connected to the casting as well as gates, resulted in improved feeding and reduced rejections.