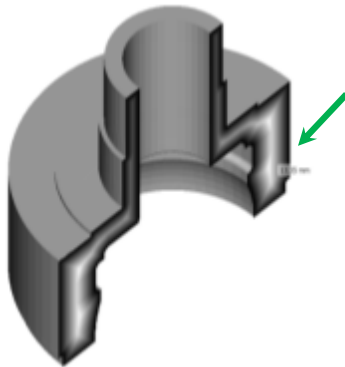
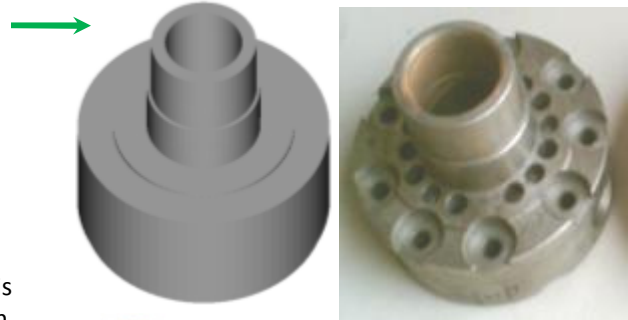


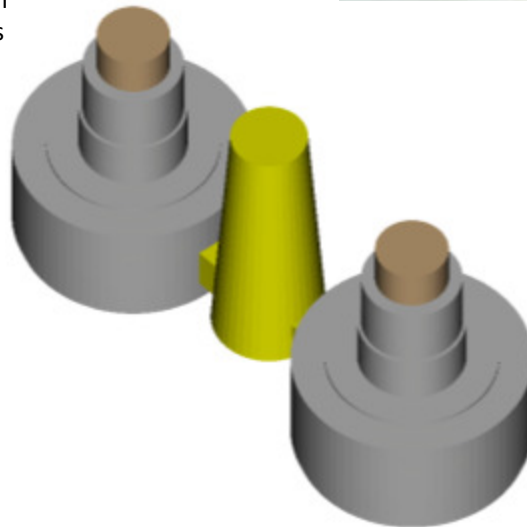
Differential Housing

Ductile Iron, Green Sand Casting

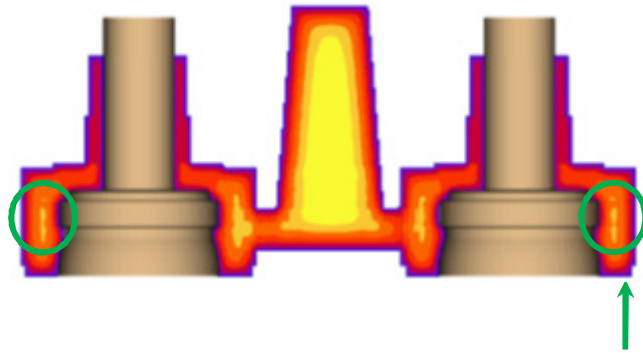
This differential housing casting of diameter 155 mm and height 135 mm, weighing 6.6 kg was produced in a multi-cavity sand mould. Internal porosity defect was observed during machining, causing a high level of rejections.



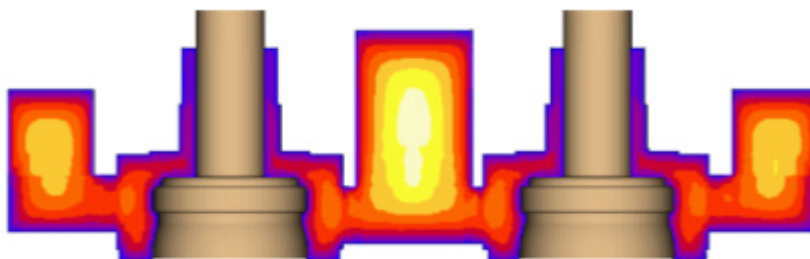
Wall thickness analysis shows a heavy section with 27 mm thickness below L-junction.



The methods design includes two castings sharing a common feeder (50 mm bottom diameter, 75 mm top diameter, and 150 mm height).



Solidification simulation shows that the feeder neck size is inadequate, and results in shrinkage porosity exactly matching with the defect found in actual casting.



A better solution would be to increase the neck sizes, add two more feeders on opposite sides of the casting, and insulate all feeders for further safety. If necessary, chills may also be placed below the affected sections.