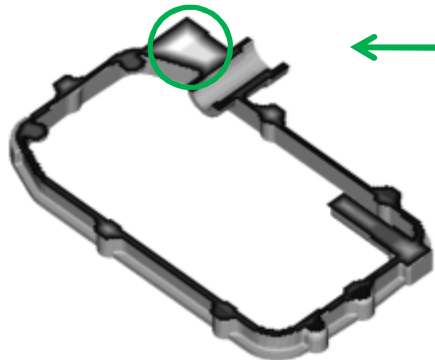
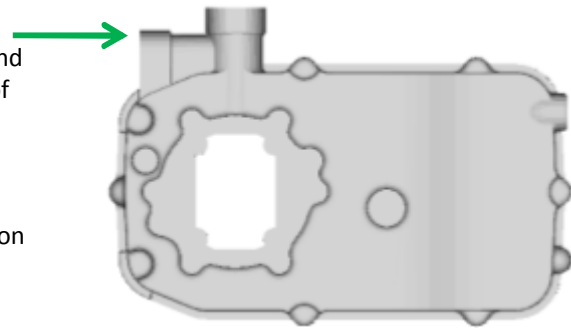


Gear Case

Cast Iron, Green Sand Casting

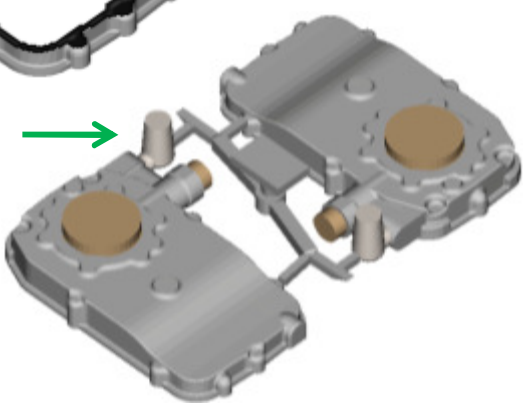
A cast iron gear case casting is of overall size 371 mm x 256 mm x 51 mm and weighs 5.76 kg. It is produced by green sand casting process. Shrinkage porosity is observed at one side of the vertical opening.



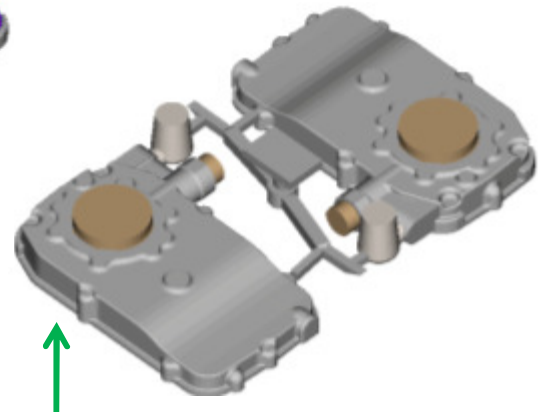
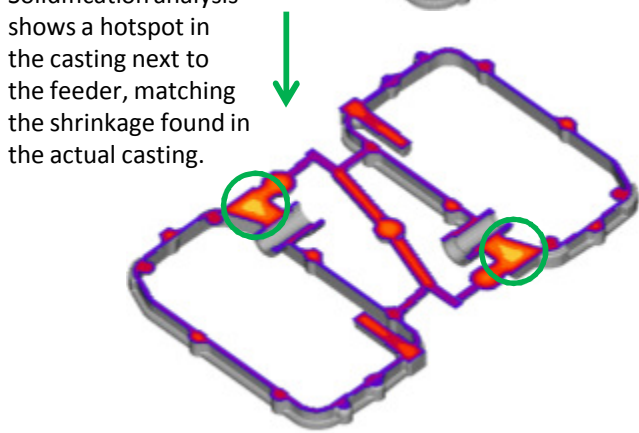
Wall thickness analysis shows a mass concentration of about 35 mm (inscribed sphere diameter) at one end of the casting.



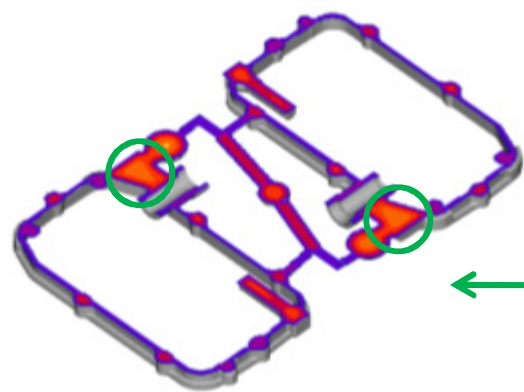
The methods layout includes two cavities in mold, each connected to a feeder, and with a common gating system.



Solidification analysis shows a hotspot in the casting next to the feeder, matching the shrinkage found in the actual casting.



The methods design is revised by enlarging the risers as well as the gating system.



Solidification simulation of the new layout shows better feeding of the defect region, though some micro-porosity can still be expected. Chills can be placed under the defect area to reduce this possibility.