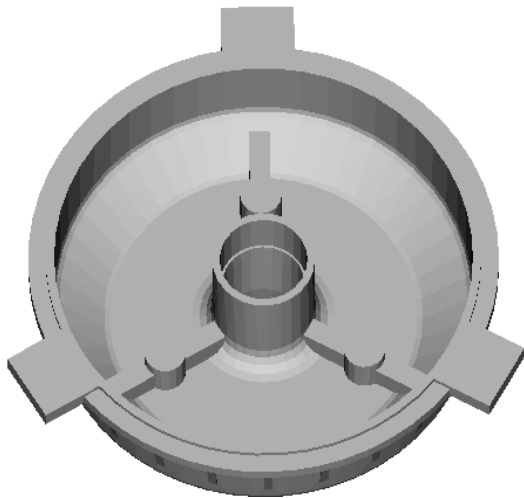
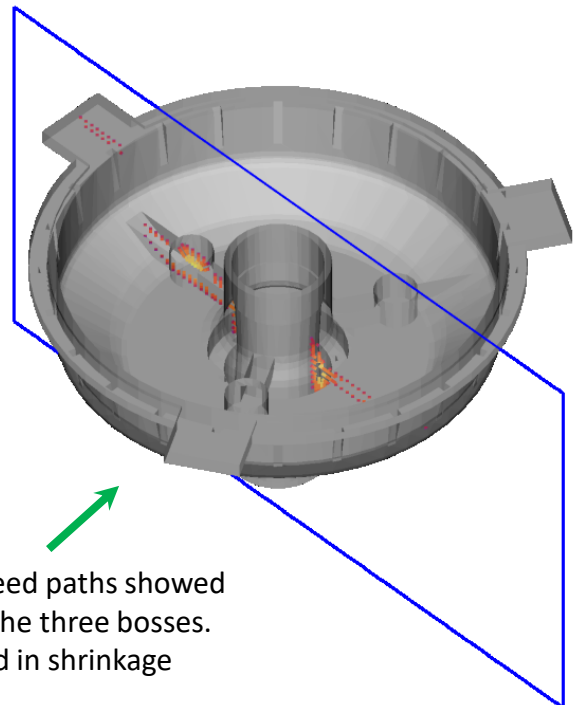
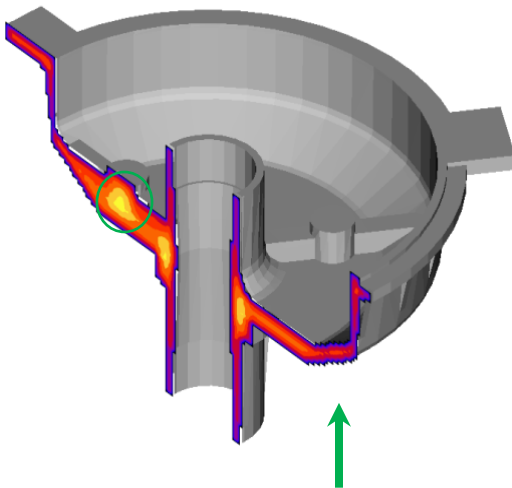
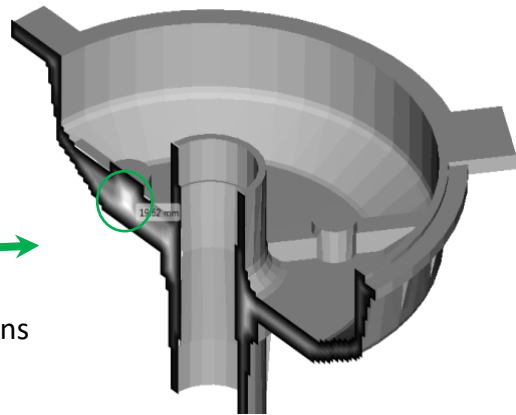


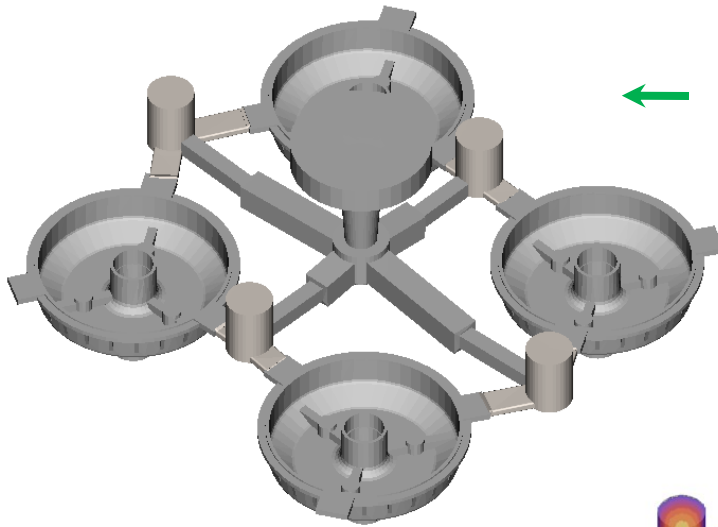
Case: The cast iron brake drum is of overall size 247 mm x 245 mm x 122 mm and weighs 4 kg. The foundry wanted to improve the quality and yield of this casting.



A 3D model of the part was created and its thickness profile was analyzed. This showed a circumferential L-junction along with boss sections of 20 mm thickness (inscribed sphere diameter).

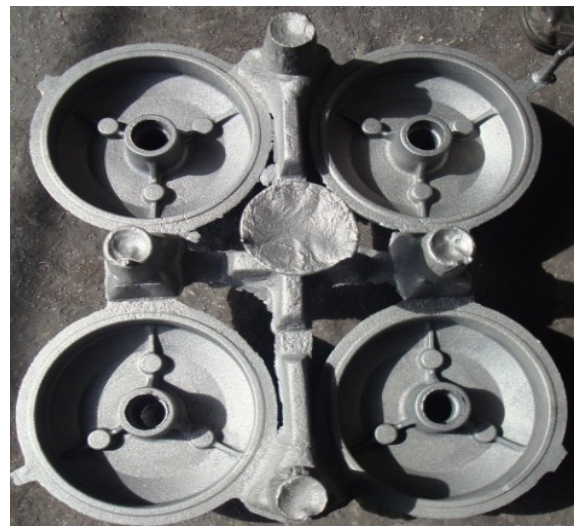
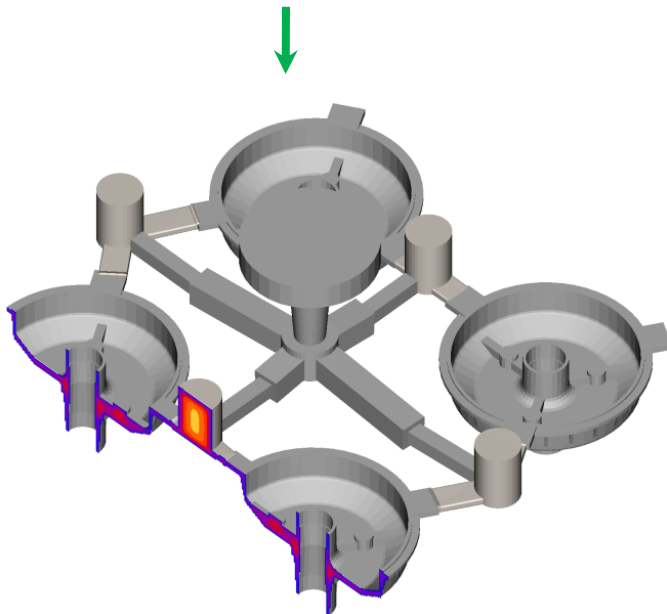
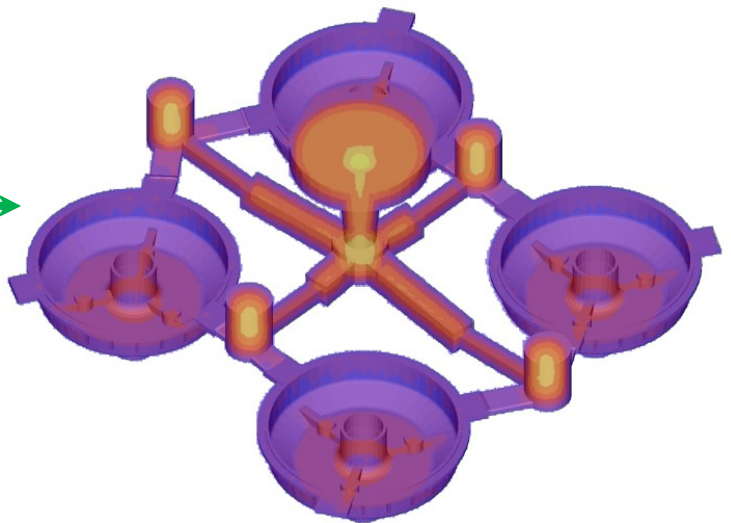


Preliminary analysis of casting solidification and feed paths showed hotspot region at the thickest section just below the three bosses. The original methoding of the casting had resulted in shrinkage porosity in these locations.



The methoding was revised with four castings in single mold, with feeders of 70 mm height and 50 mm diameter. The gating system was also designed to achieve more uniform flow of the metal.

Solidification analysis of the new method's layout shows directional solidification through the thickest region resulting in the uniform and favourable temperature gradients.



Summary: The new method design improved the yield to 77% with assured quality. Simulation enabled minimizing shop-floor trials.