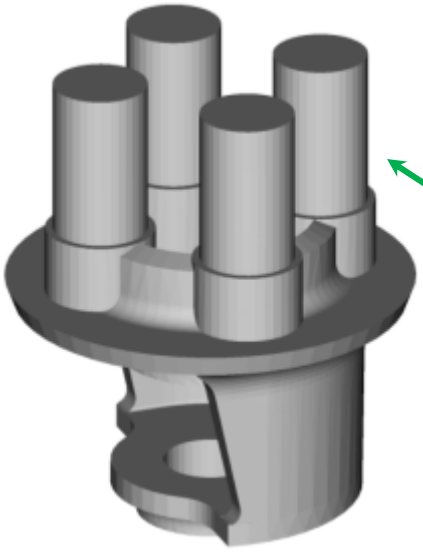
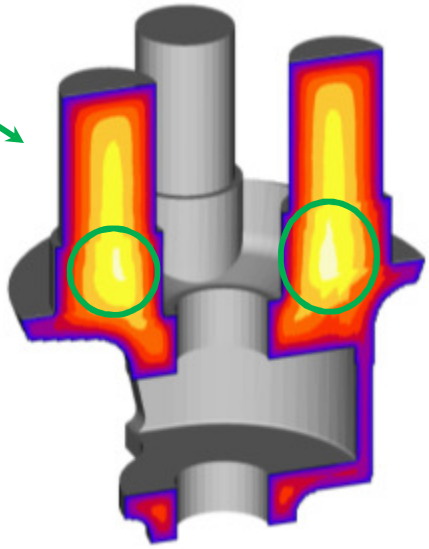
Construction Equipment

Cast Steel, Green Sand Casting

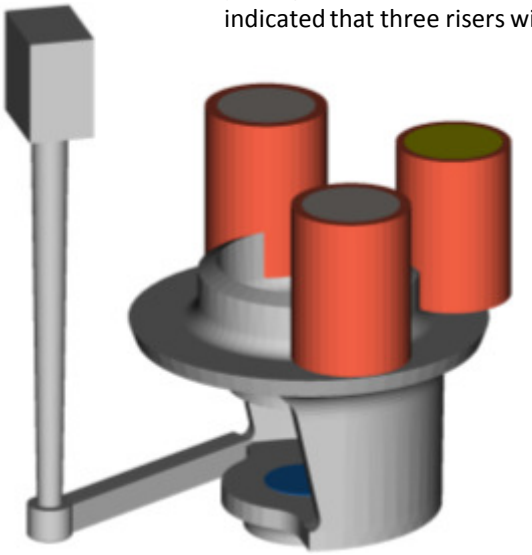
A steel cast part of construction equipment is produced in resin bonded sand mould in a medium capacity foundry. Its overall size is 660 mm diameter and 470 mm height, maximum wall thickness is 95 mm, and weight is 250 kg. The foundry faced high level of rejections (25%), low yield (58%), and considerable rework.

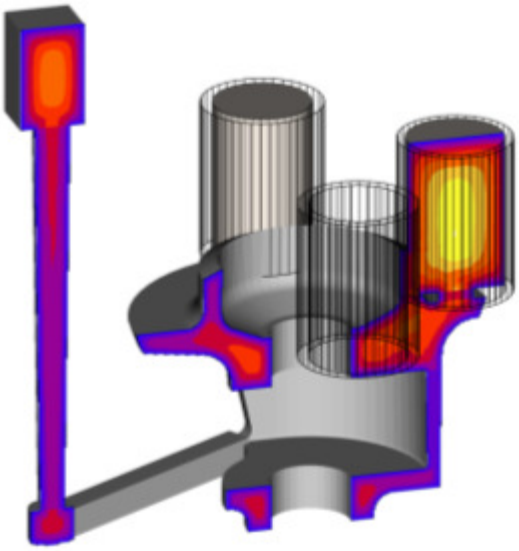


The casting was fed by four top risers on the inner rim. Casting simulation indicated risers are undersized, and also feed metal is unable to reach the hot spot in the top portion of the casting, leading to shrinkage defect.



The methods layout is modified by moving the risers to the outer rim, insulating them, and placing a chill in the core. Feed path analysis indicated that three risers will be sufficient.





The combined effect of top risers and feedaids reduced the defects by over 90%, and also increased the yield to 65%. The amount of rework is minimized. The aesthetics of the final casting also improved.