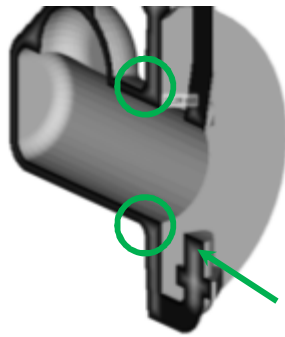


Breaker Oil Tank

Aluminum Alloy, G.D.C.

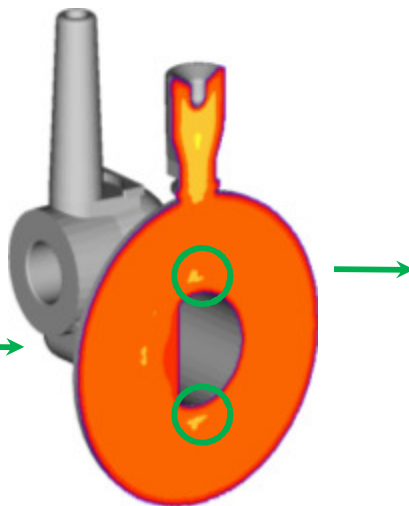
A circuit breaker oil tank of aluminum alloy (LM9) is produced by gravity die casting. Its overall size is 320 mm x 270 mm x 300 mm and it weighs 6.1 kg. Over 30% rejections were observed during pressure leak test of this casting.



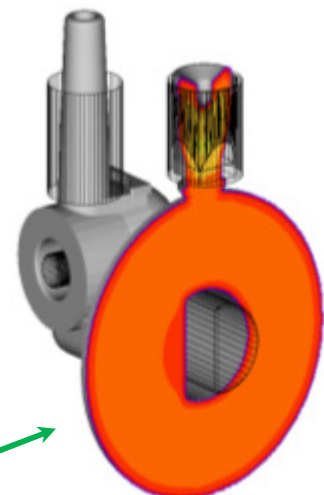
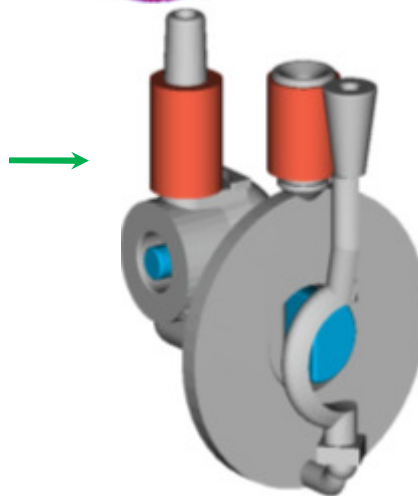
Wall thickness analysis shows two junctions between flange and 'D' shaped enclosure, with 23 mm thickness (inscribed sphere diameter).



Simulation of existing method shows feed metal is unable to reach hot spots (yellow) in the flange, just above and below 'D' shaped hole. These are matching with the shrinkage porosity observed in casting.



The problem had to be solved without any changes in the die design. Hence exothermic sleeves were provided over feeders to increase the feeding effect. Simultaneously a copper core was placed inside the steel core to reduce the magnitude of the hot spots.



The combined effect of feedaids eliminated the hot spots, and reduced the rejections to less than 5%.