

Filling defects:

- Short Cast
- Misrun / Cold shut

Problem definition

Short-cast is the result of incomplete fill of casting cavity. In some cases short-cast may extend beyond the feeder and into nominal component causing minus metal, i.e. scrap. Furthermore, where short-cast has been narrowly avoided, insufficient feed head could result in localised shrinkage or a misrun.

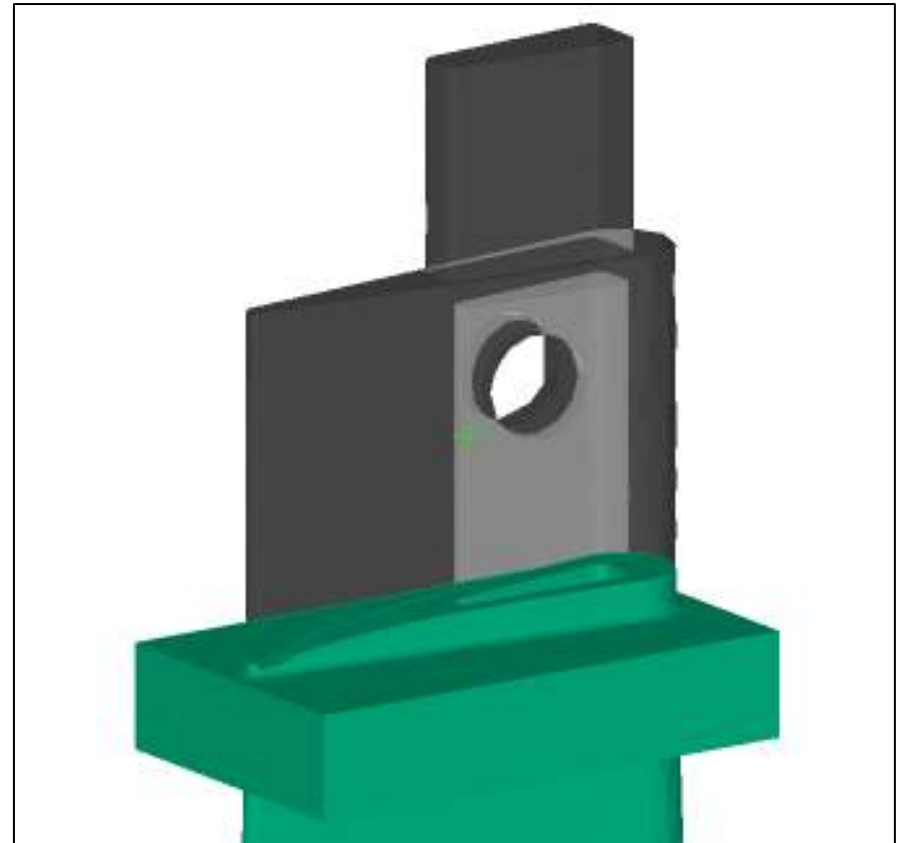
Process modelling

Short-cast was predicted to be narrowly avoided in the shroud of a root down turbine blade casting. However, the feed head present above the shroud is insufficient to prevent gross shrinkage.

Problem solution

There are numerous parameters that can be altered to eliminate or reduce short-cast.

Defect prediction



Short-cast narrowly avoided in shroud block, but insufficient head of feed achieved

Problem definition

Misrun is the result of lack of feed pressure, usually occurring in thin sections such as aerofoil trailing edges. This leads to incomplete fill of the nominal component cavity causing minus metal, i.e. scrap.

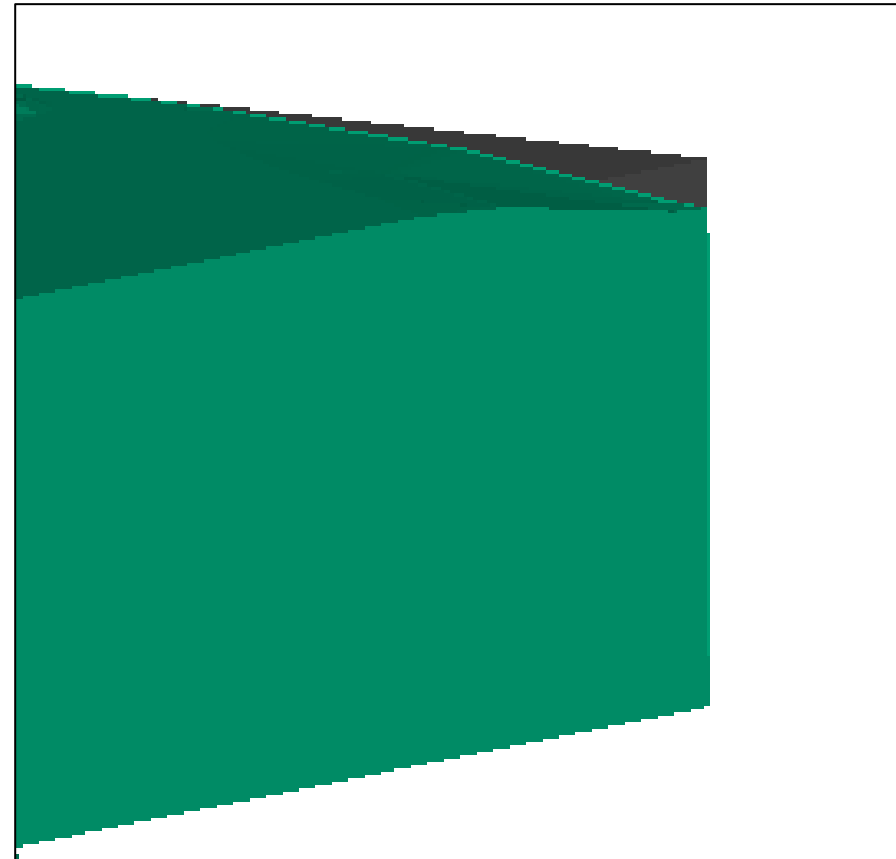
Process modelling

Misrun was predicted in the shroud corner of a root down turbine blade casting. It is also common to find misruns in ever thinner trailing edges, also causing scrap at later operations such as EDM of film cooling holes.

Problem solution

There are numerous parameters that can be altered to eliminate or reduce misruns.

Defect prediction



Misrun in shroud corner

www.sim-cast.co.uk

info@sim-cast.co.uk

+44(0) 1332 258840

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