

Problem definition

It is important to control the DS & SX casting process so solidification occurs at an optimum height with respect to the furnace baffle, to obtain flattest & least inclined solidification front. A slow cooling rate positions liquidus too high, giving lower gradient & greater isotherm curvature & inclination. Cooling too fast positions liquidus too low, giving higher total gradient but curves isotherms.

Furnace modelling

With the aid of quality tools such as process modelling, Sim-Cast are able to vary withdrawal schedule to position solidification front in the casting close to the baffle throughout the casting cycle.

Problem solution

Sim-Cast are able to determine the optimum casting schedule, resulting in the flattest possible liquidus front & hence lowest incidence of grain defects/scrap.

Importance of liquidus isotherm positioning in relation to the furnace baffle during solidification

