



Surface Cracking at the Rolling Mill

THE PROJECT

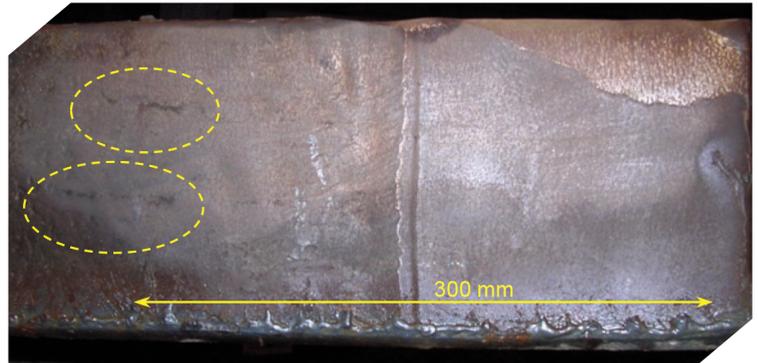
Problems with surface cracking were found at a rolling mill when processing 305mm thick cast slab into 40mm thick plate. The Institute was requested to investigate to identify the cause of the problem.

On-site investigations quickly identified that the cracking was originating in the feedstock. Figure 1 shows an example of the cracks found in the cast slab.

Samples of slab were selected for investigation by optical microscopy and mathematical modelling of the casting process was carried out. It was found that due to incorrect water cooling on the slab caster, specific locations of the slab surface were undergoing multiple metallurgical transformations that were causing localised stresses to result in surface cracking.

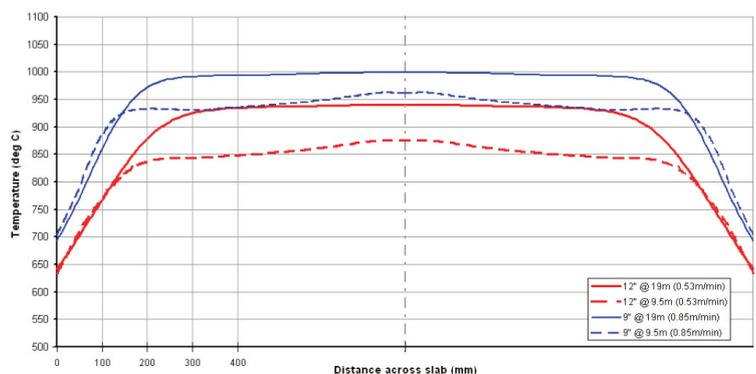
THE OUTCOME

The suggested recommendations were followed and slabs were subsequently cast with no cracks. The saving in being able to minimise scrap on this product was £120,000 per annum.



Surface cracking found on feedstock slab

Figure 1



Mathematical model results showing temperature across the slab width