Product Descaling

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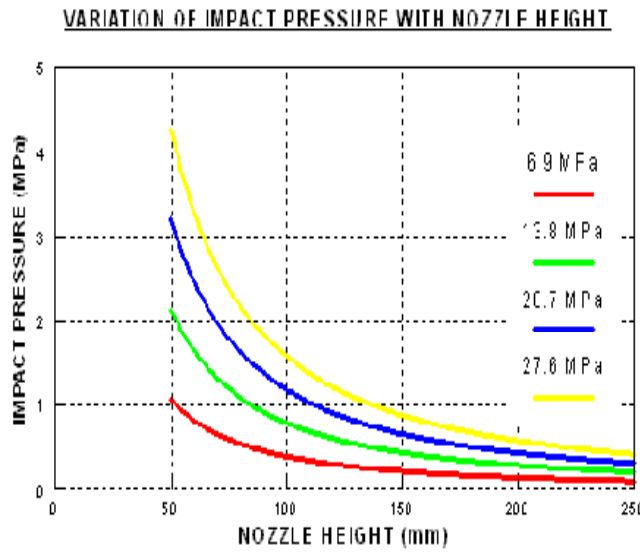
With Corus RD&T, significant expertise exists in the area of product descaling, both from a theoretical and practical point of view. The mechanisms associated with scale formation through reheating and hot rolling operations are well understood, together with requirements for primary and secondary scale removal. Descaling investigations are carried out either directly on rolling mills or within the descaling laboratories at Swinden Technology Centre.

The direct assessment of mill descaling systems ensures that optimum impact pressures, specific water impingements and spray patterns are achieved from the facility, enabling improved product surface quality to be achieved. At STC there are two descaling laboratories, a pilot plant system and a rolling mill facility.

PLATE MILL DESCALING FACILITY

Within the pilot plant facility, high pressure water descaling in the range of 0 - 900 bar is available, with flowrates dependent on piston size used. Descaling carriage sample speeds are in the range 0 - 4 m/s. A fully programmable furnace enables precise reheating conditions to be simulated, in terms of temperature and furnace atmosphere.

The facility enables the combination of impact pressure and specific water impingement (SWI) required for primary scale removal, for a particular steel grade, to be identified. Tests on new and prototype descaling nozzles can be carried out to measure performance characteristics. Test results are used in the development of models to predict impact pressures generated during works based descaling operations. Novel descaling techniques can be investigated, including high pressure low flow descaling, particulate descaling, scale characteristics produced by different reheating conditions and product temperature losses during descaling.



Within the plate mill descaling facility, large product samples can be reheated in a gas fired furnace enabling both primary and secondary descaling operations to be investigated, using descaling stations located on the roller tables.

Operating at water pressures up to 200 bar, with different capacity nozzles, standoff distances and table speeds, enables a vast range of impact pressures and specific water impingements to be achieved.

A portable descaling rig is also available, which can be transported and installed within a production line, to assess descaling requirements on any particular rolling mill.

Benefits to be gained from this technology include:-

- **improved product surface quality**
- **surface condition tailored to requirements**
- **improved efficiency of descaling operations**
- **assessment of descaling nozzle performance**