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Effect of Jet Diameter on Surface Quenching at Different Spatial Locations

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Abstract : An experimental investigation has been carried out to study the cooling of a hot horizontal Stainless Steel surface of 3 mm thickness, which has 800±10 °C initial temperature. A round water jet of 22 ± 1 °C temperature was injected over the hot surface through straight tube type nozzles of 2.5-4.8 mm diameter and 250 mm length. The experiments were performed for the jet exit to target surface spacing of 4 times of jet diameter and jet Reynolds number of 5000-24000. The effect of change in jet Reynolds number on the surface quenching has been investigated form the stagnation point to 16 mm spatial location.

Keywords : hot-surface, jet impingement, quenching, stagnation point
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