



Fig. 12.9 Longitudinal sections of steel cylinders of various diameters ($\phi = 3$ (left), 6 (middle) and 9 cm (right)). For each cylinder, the location of porosity is indicated with crosses. Moreover, 3 types of iso-value maps have been drawn: the solidification time t_f (left), the thermal gradient G (middle) and the Niyama criterion $G/\sqrt{-\dot{T}}$ where \dot{T} (denoted R in the original paper of Niyama), is the cooling rate. (After Niyama [16].)

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