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CRACK INITIATION IN NON-UNIFORMLY HEATED THICK-WALLED CYLINDER

Abstract

Mathematical description of a design model on crack initiation in an isotropic thick-walled cylinder under conditions of plane deformation is given. The solution of a problem on equilibrium of a thick-walled cylinder with embryonic crack under conditions of non-uniform temperature field is reduced to the solution of a Cauchy type integral equation with a kernel. Condition of appearance of crack is formulated with regard to criterium of ultimate opening of prefailure zone lips.