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NIKE2D/PC

A Vectorized Implicit, Finite Deformation Finite Element Code

NIKE2D/PC is a vectorized implicit, finite deformation, finite element code for analyzing the static and dynamic response of 2-D solids with interactive rezoning and graphics. This code is used for axisymmetric, plane strain, and plane stress problems in solid mechanics.

NIKE2D/PC is able to handle a variety of loading conditions including traction boundary conditions, displacement boundary conditions, concentrated nodal point loads, body force loads due to base accelerations, and body force loads due to spinning. Slide lines with interface friction are available. Elastic, orthotropic-elastic, elastic-plastic, thermo-elastic-plastic, soil and crushable foam, linear viscoelastic, thermo-orthotropic elastic, elastic-creep, and strain rate dependent material models are implemented. Nearly incompressible behavior that arises in plasticity problems and elasticity problems with Poisson's ratio approaching 0.5 is accounted for in the element formulation to preclude mesh lock-ups and associated anomalous stress states. Four node isoparametric elements are used for the spatial discretization, and profile (bandwidth) minimization is optional.

NIKE2D/PC has been applied to a wide range of large deformation, inelastic response calculations, by large number of users. Generally, the results have been quite satisfactory. Capabilities such as slide lines permitted the application of the program to problems that could not be solved without making significant simplifications. Arc length methods are used to solve problems that involve snap through buckling, plastic instabilities, and related problems where equilibrium is difficult to achieve. These problems cannot be solved with classical Newton type approaches since for a fixed load level it may be impossible to achieve equilibrium. Arc-length methods provide a way of adjusting the load level so that convergence, i.e., equilibrium, is achieved.

NIKE2D/PC a two-dimensional version is available for general use. We at Galaxy Advanced Engineering Inc. have taken steps to make these codes available on your PC platform. To order this product, please contact our company at (650) 740-3244. The software runs under PC/Windows95/98/2000/XP/ME and NT as well PC/DOS Operating System.