ANTUNES, F. V.; CAMAS, D.; CORREIA, L.; BRANCO, R. (2015) - Finite element meshes for optimal modelling of plasticity induced crack closure. Engineering Fracture Mechanics. ISSN 0013-7944. Vol. 142, p. 184-200

Abstract: The main goal here is to optimise the finite element mesh used to predict plasticity inducedcrack closure (PICC). A numerical model was developed for a M(T) specimen made of6016-T4 aluminium alloy. The parameters studied were the size of most refined region perpendicularly to crack flank (ym) and along propagation direction (xr), the size of finite elements near crack tip (L1) and the vertical size of refinement close to crack flank (yA/B). A maximum size of about 1.3 mm was found for ym, but a smaller value has a limited impact on PICC. An analytical expression was proposed for xr, dependent on DK and Kmax. An optimumvalue seems to exist for *L*1.