International Journal for ENGINEERING MODELLING
Vol. 5, No. 1-2, 1992.

Comparison of numerical methods for determination of stress intensity factors

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SUMMARY

In this paper some numerical methods for determination of stress intensity factors are compared. Linear fracture mechanic is used. On the model of the diesel engine piston analyzed with eight noded finite elements was established that all the methods are precise enough for engineering design. Theoretical assumptions of all the methods for numerical evaluation are performed. Crack growth rate is calculated by Paris fatigue propagation law with probabilistic approach by a Monte Carlo method.