Stress Concentration Factors at Crankshaft Fillets

Amended Guidance

Guidance for the Survey and Construction of Steel Ships Part D

Reason for Amendment

It is stipulated that the stress concentration factors at crankshaft fillets is to be calculated in accordance with the empirical formulae given in IACS UR M53. However, in recent years due to the increased use of “long-stroke” crankshafts for 2-stroke large engines, these formulae have the potential not to be applied because the geometries of such crankshafts are beyond any of the various validity ranges. In order to deal with this, IACS considered various alternative calculation methods and adopted as Annex III of UR M53 the calculation method proposed by CIMAC (the International Council on Combustion Engines) for stress concentration factors which utilizes the Finite Element Method. .

Therefore, relative requirements were amended in accordance with Annex III of IACS UR M53.

Outline of Amendment

The use of the calculation method for stress concentration factors at crankshaft fillets which utilizes the Finite Element Method was stipulated.