

Review of fatigue assessment procedures for welded aluminium structures

by S J Maddox

TWI Ltd,
Granta Park, Great Abington,
Cambridge, CB1 6AL,
United Kingdom
Tel. +44 1223 891162
Fax. +44 1223 890689
E-mail: stephen.maddox@twi.co.uk

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4.8 Beams with cover plates

Large cover plates welded to beam flanges represent extremely high stress concentrations and consequently result in the lowest fatigue performance for welds failing from the weld toe. Consequently, beams with cover plates have been widely investigated for providing design data. This has resulted in a large database for beams in aluminium alloys, chiefly from fabricated beams in 10-15mm thick 5000, 6000 and 7000 series alloys. ^[30 (series F3), 37] A large number of results have also been obtained from smaller beams, ^[40,41] in 4mm thick 6261-T6 aluminium alloy. All these results are plotted together in *Fig. 14*, together with the relevant design S-N curves from the four specifications considered.

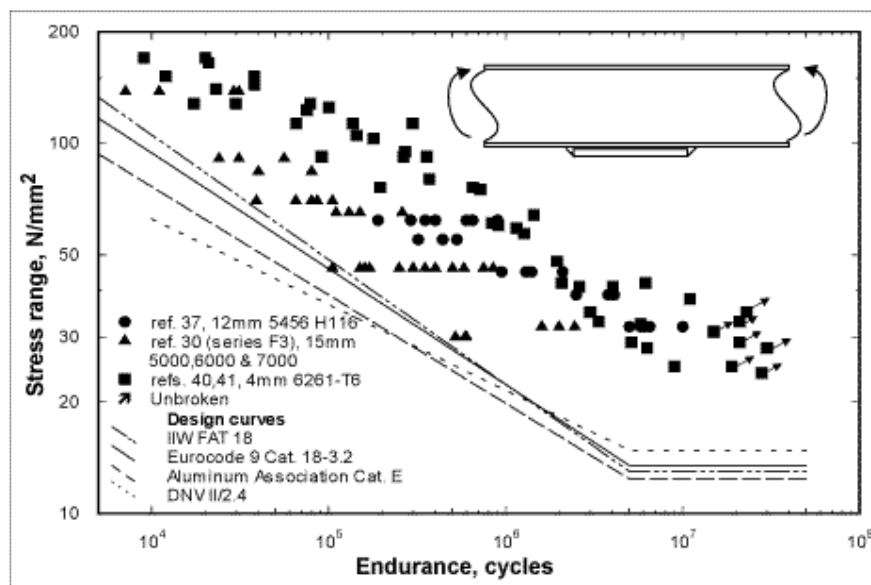


Fig.14. Comparison of fatigue test results obtained from beams with cover plates and design curves