

Subject

Non-destructive tests for butt welding joint of extremely thick steel plates in large container ships

ClassNK

Technical Information

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To whom it may concern

It has been revealed by research in recent years that extremely thick steel plates used on hull construction of large container ships might not always guarantee both the toughness against brittle fracture (crack initiation) and the arrestability in base metal or welded joint either, and the initiation of brittle fracture with long-term aging/fatigue might not always be denied, as the case may be, throughout the ship's life depending on the size of the defects in the welded joint. And further researches are presently being promoted.

On the other hand, a number of large container ships using extremely thick steel plates are now in service or under construction. No brittle fracture damages on large container ships in service have occurred. However, as a provisional safety measure, until conclusions of the research are reached, we will implement the following measures as a part of class survey for all the ships.

[Provisional Safety Measures]

Non-Destructive Tests to ensure there are no unacceptable defects in welds of extremely thick steel plates

1. Respective Ships: Container ships in service or under construction
2. Action Timing: a) Ships in service: Special Survey No.2
(Ships over 5 years and up to 10 years of age)
b) Ships before delivery: Classification Survey during construction
3. Effective Date: effective immediately
(If impracticable to follow Provisional Safety Measures for reasons such as right before delivery of the ships, please individually inform us.)
4. Application welds: all butt joints (butt direction) of following steel plates exceeding 50mm in thickness for longitudinal strength members of the ship's hull girder (excluding longitudinals and stiffeners)
 - i) Hatch coaming (including top plate)
 - ii) Upper Deck plates
 - iii) Sheer strakes
 - iv) Uppermost strake of Longitudinal Bulkhead plates

(To be continued)

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5. Non Destructive Test Method: Ultrasonic testing

6. Acceptable Criteria: 1.3.4 of Annex M1.4.2-3(1) Guidance for Non-Destructive Inspection on welded joints of Hull Construction Part M of NK Guidance

For any questions about the above, please contact:

NIPPON KAIJI KYOKAI (ClassNK)
Survey Department, Administration Center, Head Office
Address: 4-7, Kioi-cho, Chiyoda-ku, Tokyo 102-8567, Japan
Tel.: +81-3-5226-2027 / 2028
Fax: +81-3-5226-2029
E-mail: svd@classnk.or.jp