

Buckling Strength with respect to Longitudinal Bending of Hull Girder

Amended Rules and Guidance

Rules for the Survey and Construction of Steel Ships Part C
Guidance for the Survey and Construction of Steel Ships Parts C and CS

Reason for Amendment

With regard to buckling strength assessment methods with respect to compressive stress and shear stress due to longitudinal bending of hull girder, the assessment method based on elastic buckling is specified in IACS UR S11 and is incorporated into Chapter 15, Part C of the Rules for the Survey and Construction of Steel Ships. However, the application of the assessment method based on elastic buckling is not necessarily reasonable to be applied for structural members in transverse system, etc. Thus, buckling strength assessment methods for such members were individually addressed taking into account the previous experiences.

On the other hand, during the recent years, the new buckling assessment method based on ultimate strength was developed. The new method enables carrying out rational buckling strength assessment by considering residual strength after elastic buckling and was incorporated into IACS Common Structural Rules and IACS UR S11A.

Accordingly, the assessment criteria for structural members in transverse system, etc., were specified, and the assessment method for structural members in transverse system was added as an alternative method to IACS UR S11 with reference to buckling strength assessment based on ultimate strength of IACS CSR and S11A.

Outline of Amendment

- (1) Structural members in transverse system, etc., were added into members subject to buckling strength assessment with respect to longitudinal bending of hull girder.
- (2) Buckling strength assessment method based on ultimate strength was added in the Rules as an alternative method to IACS UR S11 for structural members in transverse system.
- (3) Requirements regarding hull girder ultimate strength were stipulated as additional requirements for applying the alternative method.

Amended Requirements

Rules for the Survey and Construction of Steel Ships
Part C: 15.2.1, Fig.C15.2, Fig.C15.4, Fig.C15.5, 15.4.1, 15.4.6
Guidance for the Survey and Construction of Steel Ships
Part C: C15.1.1, Table C15.1.1-1, Table C15.1.1-2, C15.4.1
Part CS: Table CS