GUIDE FOR

SLAMMING LOADS AND STRENGTH ASSESSMENT FOR VESSELS
MARCH 2011

NOTICE NO. 2 – October 2015

The following Rule Changes were approved by the ABS Rules Committee on 18 September 2015 and become **EFFECTIVE AS OF 1 OCTOBER 2015.**

(See http://www.eagle.org for the consolidated version of the Guide for Slamming Loads and Strength Assessment for Vessels, 2011, with all Notices and Corrigenda incorporated.)

Notes - *The date in the parentheses means the date that the Rule becomes effective for new construction based on the contract date for construction. (See 1-1-4/3.3 of the ABS Rules for Conditions of Classification (Part 1).)*

SECTION 8 DIRECT STRENGTH ASSESSMENT

7 Slot Connections *(1 October 2015)*

(Revise Subsection 8/7, as follows.)

Each slot connection under the design slamming pressure is to be verified using the following formulae:

$$\sigma_{fb} = P_1/A_s < S_m f_y$$

$$\tau_{dc} = P_2/A_c < S_m f_y \sqrt{3}$$

where

σ_{fb} = flat bar mean stress, in N/cm^2 (kgf/cm^2, lbf/in^2)

τ_{dc} = direct collar plate mean stress, in N/cm^2 (kgf/cm^2, lbf/in^2)

P_1 = load transmitted through flat bar stiffener, in N (kgf, lbf)

= $p_s s \ell \left(1 - \frac{1}{2}\alpha_s\right)\left(\frac{4 f_c A_s}{4 f_c A_s + A_c} - \alpha_s\right)$ if the flat bar stiffener is connected to the longitudinal stiffener

= 0 if flat bar stiffener is not connected to the longitudinal stiffener

P_2 = load transmitted through shear connection, in N (kgf, lbf)

= $p_s s \ell \left(1 - \frac{1}{2}\alpha_s\right)\left(\frac{A_c}{4 f_c A_s + A_c} + \alpha_s\right)$ if the flat bar stiffener is connected to the longitudinal stiffener

= $p_s s \ell \left(1 - \frac{1}{2}\alpha_s\right)$ if flat bar stiffener is not connected to the longitudinal stiffener

p_s = slamming pressure as described in Subsection 7/3, in N/cm^2 (kgf/cm^2, lbf/in^2)

s = spacing of longitudinal/stiffener, in cm (in.)

ℓ = spacing of transverses, in cm (in.)

A_s = net attached area of the flat bar stiffener, in cm^2 (in^2)

A_c = effective net shear sectional area of the support or of both supports for double-sided support, in cm^2 (in^2)

= $A_{lc} + A_{ld}$

A_{ld} = net shear connection area excluding lug plate, in cm^2 (in^2)

= $\ell_d \, t_{tw}$

ℓ_d = length of direct connection between longitudinal stiffener and transverse member (see Section 8, Figure 2), in cm (in.)

t_{tw} = net thickness of transverse member (see Section 8, Figure 2), in cm (in.)

A_{lc} = net shear connection area of lug plate, in cm^2 (in^2)

= $f_1 \ell_c t_c$

ℓ_c = length of connection between longitudinal stiffener and lug plate (see Section 8, Figure 2), in cm (in.)

t_c = net thickness of lug plate (see Section 8, Figure 2), not to be taken greater than the thickness of adjacent transverse member, in cm (in.)

f_1 = shear stiffness coefficient

= 1.0 for stiffener of symmetrical cross section

= $14/W$ $(5.5/W) \le 1.0$ for stiffener of asymmetrical cross section

W = width of the cut-out for an asymmetrical stiffener, measured from the cut-out side of the stiffener web (see Section 8, Figure 2), in cm (in.)

f_c = collar load factor

- *For intersecting of symmetrical stiffeners*

  for A_s in cm^2

  = 1.85 for $A_s \le 14$

  = $1.85 - 0.0441(A_s - 14)$ for $14 < A_s \le 31$

  = $1.1 - 0.013(A_s - 31)$ for $31 < A_s \le 58$

  = 0.75 for $A_s > 58$

  for A_s in in^2

  = 1.85 for $A_s \le 2.2$

  = $1.85 - 0.2883(A_s - 2.2)$ for $2.2 < A_s \le 4.8$

  = $1.1 - 0.0836(A_s - 4.8)$ for $4.8 < A_s \le 9.0$

  = 0.75 for $A_s > 9.0$

- *For intersecting of asymmetrical stiffeners*

  = $0.68 + 0.0172\ \ell_d/A_s$ for ℓ_d in cm and A_s in cm^2

  = $0.68 + 0.00677\ \ell_d/A_s$ for ℓ_d in inches and A_s in in^2

  If the length of direct and shear connections are different, their mean value is to be used instead of ℓ_d, and in case of a single lug, the value is ℓ_c.

α_s = panel aspect ratio, not to be taken greater than 0.25

= $\frac{s}{\ell}$

S_m and f_y are as defined in Subsection 8/3.

For flat bar stiffener with soft-toed brackets, the brackets may be included in the calculation of A_s.