

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

$$\sigma_{fb} = \text{flat bar mean stress, in N/cm}^2 \text{ (kgf/cm}^2 \text{, lbf/in}^2 \text{)}$$

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

$$P_1 = \text{load transmitted through flat bar stiffener, in N (kgf, lbf)}$$

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

$$= 0 \quad \text{if flat bar stiffener is not connected to the longitudinal stiffener}$$

$$P_2 = \text{load transmitted through shear connection, in N (kgf, lbf)}$$

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

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

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
	=	$14/W$ ($5.5/W \leq 1.0$) 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 $A_s \leq 14$
	=	$1.85 - 0.0441(A_s - 14)$ for $14 < A_s \leq 31$
	=	$1.1 - 0.013(A_s - 31)$ for $31 < A_s \leq 58$
	=	0.75 for $A_s > 58$
	for A_s in in ²	
	=	1.85 for $A_s \leq 2.2$
	=	$1.85 - 0.2883(A_s - 2.2)$ for $2.2 < A_s \leq 4.8$
	=	$1.1 - 0.0836(A_s - 4.8)$ for $4.8 < A_s \leq 9.0$
	=	0.75 for $A_s > 9.0$