RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part D Machinery Installations

Rules for the Survey and Construction of Steel Ships
Part D 2012 AMENDMENT NO.2
Guidance for the Survey and Construction of Steel Ships
Part D 2012 AMENDMENT NO.2

Rule No.53 / Notice No.82 15 November 2012
Resolved by Technical Committee on 27th July 2012
Approved by Board of Directors on 25th September 2012

ClassNK
NIPPON KAIJI KYOKAI

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part D Machinery Installations

2012 AMENDMENT NO.2

Rule No.53 15th November 2012

Resolved by Technical Committee on 27th July 2012

Approved by Board of Directors on 25th September 2012

Rule No.53 15th November 2012
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Rules for the survey and construction of steel ships" has been partly amended as follows:

Part D MACHINERY INSTALLATIONS

Chapter 12 PIPES, VALVES, PIPE FITTINGS AND AUXILIARIES

12.1 General

12.1.5 Service Limitations for Materials

Sub-paragraph -2(3) has been amended as follows.

(3) Cast iron products with an elongation less than 12% are not to be used for the following valves and pipe fittings:
  (a) Valves and pipe fittings with a design temperature over 220°C.
  (b) Valves and pipe fittings used for pipes of Group I and Group II (except steam pipes), except where deemed appropriate by the Society after consideration has been given to their construction and purpose.
  ~~(c) Valves and pipe fittings used for pipes of Group II (except steam pipes).~~
  (~~d~~c) Valves fitted on the external walls of fuel oil tanks or lubrication oil tanks that are subjected to the static head of internal fluid.
  (~~e~~d) Valves, seats and distance pieces mounted on shell plating or sea chests.
  (~~f~~e) Valves directly mounted onto collision bulkheads.
  (~~g~~f) Valves and pipe fittings of boiler water blow-off piping systems.
  (~~h~~g) Piping systems which are liable to receive water hammering as well as valves and pipe fittings of piping systems which are subject to large deflection or vibrations.
  (~~i~~h) Valves and pipe fittings of clean ballast piping systems which penetrate cargo oil tanks and reach the forepeak tank.
  (~~j~~i) Valves and pipe fittings of cargo oil piping systems with a design pressure over 1.6*MPa*.
  (~~k~~j) Valves provided at the ship/shore connection of a flammable liquid cargo line.

Chapter 13 PIPING SYSTEMS

13.16 Exhaust Gas Piping Arrangements

Paragraph 13.16.3 has been amended as follows.

13.16.3 Exhaust Gas Pipes from Incinerators

In cases where incinerator exhaust gas pipes are of a shape (e.g., u-shaped, etc.) which is susceptible to the accumulation of unburnt matter, ~~A~~a cleaning hole is to be provided for maintenance at the ~~bending~~ parts ~~of exhaust gas pipes from incinerators~~where said unburnt matter is expected to easily accumulate.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 15 November 2012.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part D Machinery Installations

2012 AMENDMENT NO.2

Notice No.82 15 November 2012

Resolved by Technical Committee on 27th July 2012

Notice No.82 15th November 2012
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Guidance for the survey and construction of steel ships" has been partly amended as follows:

Part D MACHINERY INSTALLATIONS

D8 TORSIONAL VIBRATION OF SHAFTINGS

D8.2 Allowable Limit

D8.2.6 Detailed Evaluation for Strength

Sub-paragraph -3 has been amended as follows.

3 In cases where intermediate shafts with longitudinal slots given in **Table D8.1, Part D of the Rules** are equipped, the value of C_K may be determined by using the following formulae:

$$C_K = 1.45/scf$$

$$scf = \alpha_{t(hole)} + \text{~~0.57~~}\underline{0.80}\frac{(l-e)/d_a}{\sqrt{\left(1-\frac{d_i}{d_a}\right)\frac{e}{d_a}}}$$

where

scf : Stress concentration factor at the end of slots defined as the ratio between the maximum local principal stress and $\sqrt{3}$ times the nominal torsional stress determined for the hollow shafts without slots

l : Slot length

e : Slot width

d_i : Inside diameter of the hollow shaft at the slot

d_a : Outside diameter of the hollow shaft

$\alpha_{t(hole)}$: Stress concentration factor of radial holes (in this context, e = hole diameter) determined by the following formula (an approximate value of 2.3 may be used as well)

$$\alpha_{t(hole)} = 2.3 - 3\frac{e}{d_a} + 15\left(\frac{e}{d_a}\right)^2 + 10\left(\frac{e}{d_a}\right)^2\left(\frac{d_i}{d_a}\right)^2$$

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 15 November 2012.