

S30 Cargo Hatch Cover Securing Arrangements for Bulk Carriers not Built in accordance with UR S21 (Rev.3)

(Jan. 2003)
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1. Application and Implementation

1.1 These requirements apply to all bulk carriers, as defined in UR Z11.2.2, which were not built in accordance with UR S21(Rev.3) and are for steel hatch cover securing devices and stoppers for cargo hold hatchways No.1 and No.2 which are wholly or partially within 0.25L of the fore perpendicular, except pontoon type hatch cover.

1.2 All bulk carriers not built in accordance with UR S21 (Rev.3) are to comply with the requirements of this UR in accordance with the following schedule:

- i. For ships which will be 15 years of age or more on 1 January 2004 by the due date of the first intermediate or special survey after that date;
- ii. For ships which will be 10 years of age or more on 1 January 2004 by the due date of the first special survey after that date;
- iii. For ships which will be less than 10 years of age on 1 January 2004 by the date on which the ship reaches 10 years of age.

1.3 Completion prior to 1 January 2004 of an intermediate or special survey with a due date after 1 January 2004 cannot be used to postpone compliance. However, completion prior to 1 January 2004 of an intermediate survey the window for which straddles 1 January 2004 can be accepted.

2. Securing Devices

2.1 The strength of securing devices is to comply with the following requirements:

2.1.1 Panel hatch covers are to be secured by appropriate devices (bolts, wedges or similar) suitably spaced alongside the coamings and between cover elements.

Arrangement and spacing are to be determined with due attention to the effectiveness for weather-tightness, depending upon the type and the size of the hatch cover, as well as on the stiffness of the cover edges between the securing devices.

2.1.2 The net sectional area of each securing device is not to be less than:

$$A = 1.4 a / f \text{ (cm}^2\text{)}$$

where:

a = spacing between securing devices not to be taken less than 2 meters

$$f = (\sigma_Y / 235)^e$$

σ_Y = specified minimum upper yield stress in N/mm² of the steel used for fabrication, not to be taken greater than 70% of the ultimate tensile strength.

$$e = 0.75 \text{ for } \sigma_Y > 235$$

$$= 1.0 \text{ for } \sigma_Y \leq 235$$



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Rods or bolts are to have a net diameter not less than 19 mm for hatchways exceeding 5 m² in area.

- 2.1.3 Between cover and coaming and at cross-joints, a packing line pressure sufficient to obtain weathertightness is to be maintained by the securing devices.

For packing line pressures exceeding 5 N/mm, the cross section area is to be increased in direct proportion. The packing line pressure is to be specified.

- 2.1.4 The cover edge stiffness is to be sufficient to maintain adequate sealing pressure between securing devices. The moment of inertia, I , of edge elements is not to be less than:

$$I = 6 p a^4 \text{ (cm}^4\text{)}$$

p = packing line pressure in N/mm, minimum 5 N/mm

a = spacing in m of securing devices.

- 2.1.5 Securing devices are to be of reliable construction and securely attached to the hatchway coamings, decks or covers. Individual securing devices on each cover are to have approximately the same stiffness characteristics.

- 2.1.6 Where rod cleats are fitted, resilient washers or cushions are to be incorporated.

- 2.1.7 Where hydraulic cleating is adopted, a positive means is to be provided to ensure that it remains mechanically locked in the closed position in the event of failure of the hydraulic system.

3. Stoppers

- 3.1 No. 1 and 2 hatch covers are to be effectively secured, by means of stoppers, against the transverse forces arising from a pressure of 175 kN/m².

- 3.2 No. 2 hatch covers are to be effectively secured, by means of stoppers, against the longitudinal forces acting on the forward end arising from a pressure of 175 kN/m².

- 3.3 No. 1 hatch cover is to be effectively secured, by means of stoppers, against the longitudinal forces acting on the forward end arising from a pressure of 230 kN/m².

This pressure may be reduced to 175 kN/m² if a forecastle is fitted.

- 3.4 The equivalent stress:

- i. in stoppers and their supporting structures, and
- ii. calculated in the throat of the stopper welds is not to exceed the allowable value of $0.8 \sigma_Y$.

4. Materials and Welding

- 4.1 Where stoppers or securing devices are fitted to comply with this UR, they are to be manufactured of materials, including welding electrodes, meeting relevant IACS requirements.

