

**Translation: Only the Danish version is authentic**

*The Danish Maritime Authority's Guidance no. 5 of 2 August 2000*

**Guidance on the design and testing of gangways, accommodation ladders and platforms**

This guidance has been drawn up on the basis of "Common Requirements for the design and construction of gangways and accommodation ladders including platforms", to which a number of European countries have agreed.

**Application**

- 1.1 All ships shall have satisfactory means of access so that they may be embarked and disembarked without any risk. This guidance shall apply to the design and testing of gangways, accommodation ladders and platforms of ships.
- 1.2 This guidance shall not preclude the use of other means of access than gangways and accommodation ladders if they are just as secure as the means of access complying with this guidance.
- 1.3 Gangways, accommodation ladders and platforms should be designed and tested either in accordance with the guidance below or in accordance with ISO standard 5488 for accommodation ladders and ISO standard 7061 for gangways.

**General**

- 2.1 Gangways, accommodation ladders and other means of access, including platforms, galleys and fastening to the ship shall be designed with a safety factor of at least 2.5 in relation to the guaranteed yield point of the material (for aluminium the yield point shall be calculated at a permanent extension of 0.2%).
- 2.2 Fixed railings forming an integrated part of the means of access that are included in the strength calculation may not be removed during the load tests.
- 2.3 Chains, shackles, rings and the like used for lifting or suspending accommodation ladders or gangways shall have a safety factor in relation to the ultimate stress of the material of 5 and be provided with a certificate. Ropes shall have a safety factor of 8. Wire shall have a safety factor of 6.
- 2.4 Means of access shall be provided with the necessary means for secure fastening of chains, hand ropes and the like.
- 2.5 Insulation shall be provided between aluminium and steel in the form of non-hygroscopic material in accordance with a recognised method.
- 2.6 Gangways, accommodation ladders and similar constructions as well as associated platforms shall be provided with railings at the sides with at least two stanchions/handropes or the like over the entire length. The height of the railing shall be at least 100 cm. The distance between the stanchions may not exceed 150 cm.

- 2.7 The railing arrangement shall be capable of withstanding a stress of at least 500 N horizontally at the upper end of the stanchion or, where fixed railings are provided, a stress of at least 500 N per metre, distributed evenly.
- 2.8 Means of access that are, when in the swung out condition, designed to rest on the quay or the like shall be provided with rollers or wheels at the lower end.
- 2.9 It shall be possible to fasten safety nets, properly spread out.
- 2.10 Gangways and accommodation ladders shall be fitted with a conspicuous sign indicating clearly the greatest and smallest angle in relation to the horizontal position at which it is permitted to use the means of access.

### **Design of gangways**

- 3.1 Gangways shall offer a free passage of at least 55 cm.
- 3.2 Gangways shall be fitted with transverse non-skid treads to ensure a secure foothold. The distance between the treads shall be at least 30 cm and no more than 40 cm measured along the gangway. The walking area of the gangway shall have an anti-skid surface.
- 3.3 Gangways shall be designed for withstanding at least an evenly distributed static load of  $4,000 \text{ N/m}^2$  plus the dead load of the gangway. The loaded areas shall be calculated as the length of the gangway multiplied by the breadth between the bearers. The gangway shall have sufficient strength to be capable of withstanding bending. The strength shall be tested.
- 3.4 If there is a wish to have a gangway type-approved, a prototype shall, furthermore, be loaded in the horizontal position without railings, unless these are fixed and are included in the strength calculation, cf. subparagraph 2.2. At first, the gangway shall be supported at both ends and, subsequently, it shall be supported/suspended in ways corresponding to the suspension possibilities for which the gangway has otherwise been designed. The test load shall be at least  $5,000 \text{ N/m}^2$ , distributed evenly. The deflection may not exceed 1/100 for steel and 1/75 for aluminium of the distance between the supports. The testing may not result in permanent deformation.
- 3.5 If a gangway is also intended for use as an accommodation ladder, it shall, furthermore, comply with the provisions of subparagraphs 4.1-4.7.

### **Design of accommodation ladders**

- 4.1 Accommodation ladders shall offer a free passage of at least 55 cm.
- 4.2 Accommodation ladders shall be fitted with adjustable steps or be of a design ensuring a secure foothold at all angles between 0 and 55 in relation to the horizontal position. The walking area of the accommodation ladder shall have an anti-skid surface.
- 4.3 Non-adjustable steps shall be accepted for accommodation ladders only if the area of application lies between 20 and 50 in relation to the horizontal position.

- 4.4 Accommodation ladders shall, in general, be provided with an upper and a lower platform.
- 4.5 Accommodation ladders with a free passage of up to and including 60 cm shall be designed for withstanding a static load of at least 750 N on each step plus the dead load of the accommodation ladder. Where the passage exceeds 60 cm, but is not of more than 100 cm, the accommodation ladder shall be designed for withstanding a static load of 2 x 750 N on each step, distributed with 750 N at each side of the steps at a distance of about 1/4 of their length from the bearers plus the dead load of the accommodation ladder. The accommodation ladder shall have sufficient strength to be capable of withstanding bending. The strength shall be tested. In the case of accommodation ladders with a free passage exceeding 100 cm, the strength requirements shall be laid down in each individual case.
- 4.6 If there is a wish to have a gangway type-approved, a prototype shall, furthermore, be loaded in the horizontal position without railings, unless these are fixed and are included in the strength calculation, cf. subparagraph 2.2. At first, the accommodation ladder shall be supported at both ends and, subsequently, it shall be supported in ways corresponding to the suspension possibilities for which the accommodation ladder has been designed. The test load shall be at least 1,000 N/m<sup>2</sup> or 2 x 1,000 N as stipulated in subparagraph 4.5. The deflection may not exceed 1/100 for steel and 1/75 for aluminium of the distance between the supports. The testing may not result in permanent deformation.
- 4.7 If an accommodation ladder is also intended for use as a gangway, it shall, furthermore, comply with the provisions of subparagraphs 3.1-3.5.

#### **Design of platforms for gangways and accommodation ladders**

- 5.1 Platforms shall offer a free walking area of at least 0.36 m<sup>2</sup> and shall have a breadth of at least 55 cm.
- 5.2 The walking area of platforms shall have an anti-skid surface.
- 5.3 The upper platform should be fitted with a turning device or should be designed in such a way that it is possible to turn the means of access towards the quay.
- 5.4 The upper platform and any intermediate platforms shall be designed for withstanding an evenly distributed static load of 4,000 N/m<sup>2</sup> plus the dead load of the accommodation ladder or the gangway, suspended in the worst position with a load as stipulated in subparagraph 3.3 or 4.5
- 5.5 The lower platform shall be designed for withstanding an evenly distributed static load of 5,000 N/m<sup>2</sup>.
- 5.6 If there is a wish to have a platform type-approved together with a type-approved accommodation ladder and/or gangway, it shall be test-loaded. The test load for the upper platform and any intermediate platforms shall be at least 5,000 N/m<sup>2</sup> plus 50% of the total weight of the accommodation ladder or the gangway and the lower platform,

when loaded as stipulated in subparagraphs 3.4 and 4.6 (in the case of intermediate platforms, 50% of the part suspended below the platforms).

- 5.7 During testing, platforms shall be suspended normally on board, and the test load for the accommodation ladder or the gangway shall be suspended in ways corresponding to the suspension possibilities for which the arrangement has been designed. The lower platform shall be suspended in the normal way from the accommodation ladder and/or the gangway and shall be test-loaded by 6,000 N/m<sup>2</sup>.

### **Type-approval**

- 6.1 Type-approval of gangways, accommodation ladders and platforms is not mandatory. Applications for type-approval shall be accompanied by detailed drawings and calculations in triplo together with information about the work load for which the means of access has been designed. The type designation and the name under which it is the intention to sell the means of access shall be indicated.

### **Practical testing of means of access at the first main survey**

- 7.1 Not type-approved means of access shall be subjected to the tests stipulated in subparagraphs 3.4, 4.6, 5.6 and 5.7.
- 7.2 At the first main survey, all means of access systems shall, after having been installed on board, be tested together with the suspension arrangement, including winches, davits, chains and wires, etc. The load shall be as stipulated in subparagraphs 3.4, 4.6 and 5.6, respectively.
- 7.3 The Danish Maritime Authority shall accept tests carried out by recognised test institutes, including test institutes in other EU member States offering suitable and satisfactory guarantees of a technical, professional and independent nature.

### **Repeal**

- 8 Guidance no. 40 of 1 September 1988 issued by the Danish Maritime Authority shall be repealed.