

# SC 178 Emergency Fire Pumps in Cargo Ships (FSS Code, Ch. 12, 2.2.1.3)

(July 2003)  
(Withdrawn Apr 2005)  
(Rev.1 Apr 2011)

It should be demonstrated by calculation that this paragraph is satisfied at:

- ~~the lightest seagoing condition, with account being taken of 22.5° roll and 10° pitch<sup>4)</sup>; and~~

<sup>4)</sup> ~~Where the length of the ship exceeds 100m, the **pitch** may be taken as 500/L degrees where L = length of the ship, in metres, as defined in UR S2.~~

- ~~a loading condition without cargo or ballast water, with 10% stores and fuel remaining, roll and pitch not being taken into account.~~

~~Upon completion of the emergency fire pump installation, a performance test confirming the capacity required in the FSS Code, Ch. 12, 2.2.1.1 and UI SC163 should be carried out. As far as practicable, the test should be carried out at lightest seagoing draught at the suction position.~~

## **FSS Code, Chapter 12, paragraph 2.2.1.3 Suction heads**

The total suction head and the net positive suction head of the pump shall be determined having due regard to the requirements of the Convention and this chapter on the pump capacity and on the hydrant pressure under all conditions of list, trim, roll and pitch likely to be encountered in service. The ballast condition of a ship on entering or leaving a dry dock need not be considered a service condition.

### **Interpretation**

1. It shall be documented that the suction inlet is fully submerged under “all conditions of list, trim, roll and pitch likely to be encountered in service” as given below.

1.1 Operational seagoing condition for which roll, pitch and heave shall be applied is as follows:

The lightest seagoing condition shall be considered, which is defined as the ballast condition which gives the shallowest draught at the position of the sea chest and emergency fire pump as given in the approved stability booklet (or preliminary stability calculation for new building). The following table shall be applied for the calculation of roll, pitch and heave. The heave combined pitch and heave combined roll are taken into account separately.

Note:

1. This UI is to be uniformly implemented by IACS Members and Associates from 1 January 2004.
2. Rev.1 to the interpretation is applicable to members for ships contracted for construction on or after 1 January 2012.
3. The “contracted for construction” date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of “contract for construction”, refer to IACS Procedural Requirement (PR) No.29.

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## 1.1.1 Heave combined pitch<sup>1)</sup> in head sea

$\underline{L}$ (m)	<u>75 and below</u>	<u>100</u>	<u>125</u>	<u>150</u>	<u>175</u>	<u>200</u>	<u>225</u>	<u>250</u>	<u>300</u>	<u>350 and above</u>
$\underline{\Phi}$ (deg)	<u>4.5</u>	<u>4</u>	<u>3.2</u>	<u>2.7</u>	<u>2.3</u>	<u>2.1</u>	<u>1.8</u>	<u>1.7</u>	<u>1.6</u>	<u>1.5</u>
$\underline{H}$ (m)	<u>0.73</u>	<u>0.8</u>	<u>0.87</u>	<u>0.93</u>	<u>0.98</u>	<u>1.03</u>	<u>1.07</u>	<u>1.11</u>	<u>1.19</u>	<u>1.25</u>

Note: Values at the intermediate length of ships are to be obtained by linear interpolation.

Where:

$\underline{L}$ : length of the ship, in meters, as defined in the International Convention on Load Lines in force, or length between perpendiculars at the ballast draught, whichever is greater

$\varphi$ : pitch angle<sup>2)</sup> as defined in figure 1

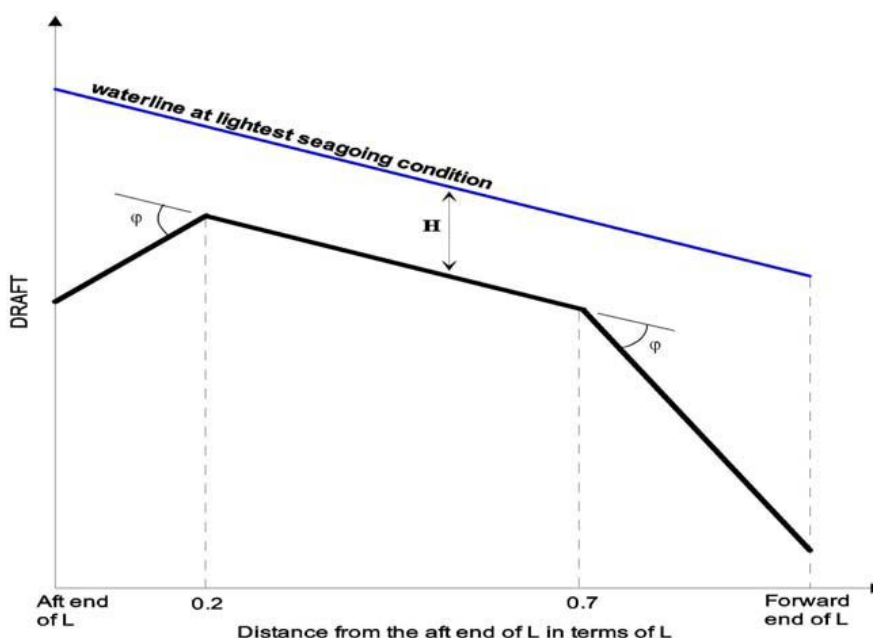
$\underline{H}$ : heave amplitude as defined in figure 1

## 1.1.2 Heave combined roll in beam sea

Heave combined roll angle<sup>2)</sup> shall be taken as:

.1 ships with bilge keels: 11°; and

.2 ships without bilge keels: 13°



**Figure 1 – Waterline for which heave combined pitch is taken into account**

<sup>1)</sup> The heave combined pitch is taken into account as in figure 1.

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2) Angle is to be measured from still waterline and downwards.

1.2 The emergency fire pump suction shall be submerged at the waterlines corresponding to the two following conditions:

.1 a static waterline drawn through the level of 2/3 immersion of the propeller at even keel (for pod or thruster driven ship, special consideration should be given); and

.2 the ship in the arrival ballast condition, as per the approved trim and stability booklet, without cargo and with 10% stores and fuel remaining.

For either condition, roll, pitch and heave need not be applied.

1.3 A ship operating solely in sheltered water issued with SOLAS Certificates shall be subject to compliance with the still water submergence requirements set out in paragraph 1.2.1 above.

2. In all cases the net positive suction head (NPSH) available for the pump shall be greater than the NPSH required.

3. Upon completion of the emergency fire pump installation, a performance test confirming the pump's capacity required in the FSS Code, chapter 12, paragraph 2.2.1.1, shall be carried out and, if the emergency fire pump is the main supply of water for any fixed fire-extinguishing system provided to protect the spaces where the main fire pumps are located, the pump shall have the capacity for this system. As far as practicable, the test shall be carried out at the draught corresponding to the lightest seagoing condition.

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