

## Regulation 19 - *Double hull and double bottom requirements for oil tankers delivered on or after 6 July 1996*

SEE [INTERPRETATIONS 13](#) , [31](#) AND [38](#)

1 This regulation shall apply to oil tankers of 600 tonnes deadweight and above delivered on or after 6 July 1996, as defined in [regulation 1.28.6](#), as follows:

2 Every oil tanker of 5,000 tonnes deadweight and above shall:

.1 in lieu of paragraphs 12 to 15 of [regulation 18](#), as applicable, comply with the requirements of paragraph 3 of this regulation unless it is subject to the provisions of paragraphs 4 and 5 of this regulation; and

.2 comply, if applicable, with the requirements of regulation 28.7.

3 The entire cargo tank length shall be protected by ballast tanks or spaces other than tanks that carry oil as follows:

.1 Wing tanks or spaces

Wing tanks or spaces shall extend either for the full depth of the ship's side or from the top of the double bottom to the uppermost deck, disregarding a rounded gunwale where fitted. They shall be arranged such that the cargo tanks are located inboard of the moulded line of the side shell plating nowhere less than the distance  $w$  which, as shown in [figure 1](#) is measured at any cross-section at right angles to the side shell, as specified below:

$$w = 0.5 + \frac{DW}{20,000} \text{ (m) or}$$

$$w = 2.0 \text{ m, whichever is the lesser.}$$

The minimum value of  $w = 1.0 \text{ m}$ .

.2 Double bottom tanks or spaces

At any cross-section the depth of each double bottom tank or space shall be such that the distance  $h$  between the bottom of the cargo tanks and the moulded line of the bottom shell plating measured at right angles to the bottom shell plating as shown in [figure 1](#) is not less than specified below:

$$h = B/15 \text{ (m) or}$$

$h$  = 2.0 m, whichever is the lesser.

The minimum value of  $h$  = 1.0 m.

.3 Turn of the bilge area or at locations without a clearly defined turn of the bilge

When the distances  $h$  and  $w$  are different, the distance  $w$  shall have preference at levels exceeding  $1.5h$  above the baseline as shown in [figure 1](#).

SEE [INTERPRETATION 39](#)

.4 The aggregate capacity of ballast tanks

On crude oil tankers of 20,000 tonnes deadweight and above and product carriers of 30,000 tonnes deadweight and above, the aggregate capacity of wing tanks, double bottom tanks, forepeak tanks and after peak tanks shall not be less than the capacity of segregated ballast tanks necessary to meet the requirements of [regulation 18](#) of this Annex. Wing tanks or spaces and double bottom tanks used to meet the requirements of [regulation 18](#) shall be located as uniformly as practicable along the cargo tank length. Additional segregated ballast capacity provided for reducing longitudinal hull girder bending stress, trim, etc., may be located anywhere within the ship.

.5 Suction wells in cargo tanks

Suction wells in cargo tanks may protrude into the double bottom below the boundary line defined by the distance  $h$  provided that such wells are as small as practicable and the distance between the well bottom and bottom shell plating is not less than  $0.5h$ .

.6 Ballast and cargo piping

Ballast piping and other piping such as sounding and vent piping to ballast tanks shall not pass through cargo tanks. Cargo piping and similar piping to cargo tanks shall not pass through ballast tanks. Exemptions to this requirement may be granted for short lengths of piping, provided that they are completely welded or equivalent.

4 The following applies for double bottom tanks or spaces:

.1 Double bottom tanks or spaces as required by paragraph 3.2 of this regulation may be dispensed with, provided that the design of the tanker is such that the cargo and vapour pressure exerted on the bottom shell plating forming a single boundary between the cargo and the sea does not exceed the external hydrostatic water pressure, as expressed by the following formula:

$$f \times h_c \times \rho_c \times g + p \leq d_n \times \rho_s \times g$$

**where:**

$h_c$	= height of cargo in contact with the bottom shell plating in metres
$\rho_c$	= maximum cargo density in kg/m <sup>3</sup>
$d_n$	= minimum operating draught under any expected loading condition in metres
$\rho_s$	= density of seawater in kg/m <sup>3</sup>
$p$	= maximum set pressure above atmospheric pressure (gauge pressure) of pressure/vacuum valve provided for the cargo tank in pascals
$f$	= safety factor = 1.1
$g$	= standard acceleration of gravity (9.81 m/s <sup>2</sup> )

.2 Any horizontal partition necessary to fulfil the above requirements shall be located at a height not less than  $B/6$  or 6 m, whichever is the lesser, but not more than  $0.6D$ , above the baseline where  $D$  is the moulded depth amidships.

.3 The location of wing tanks or spaces shall be as defined in paragraph 3.1 of this regulation except that, below a level  $1.5 h$  above the baseline where  $h$  is as defined in paragraph 3.2 of this regulation, the cargo tank boundary line may be vertical down to the bottom plating, as shown in [figure 2](#).

SEE [INTERPRETATION 40](#)

5 Other methods of design and construction of oil tankers may also be accepted as alternatives to the requirements prescribed in paragraph 3 of this regulation, provided that such methods ensure at least the same level of protection against oil pollution in the event of collision or stranding and are approved in principle by the Marine Environment Protection Committee based on guidelines developed by the Organization. [footnote](#)

6 Every oil tanker of less than 5,000 tonnes deadweight shall comply with paragraphs 3 and 4 of this regulation, or shall:

.1 at least be fitted with double bottom tanks or spaces having such a depth that the distance  $h$  specified in paragraph 3.2 of this regulation, complies with the following:

$$h = B/15 \text{ (m)}$$

with a minimum value of  $h = 0.76 \text{ m}$ ;

in the turn of the bilge area and at locations without a clearly defined turn of the bilge, the cargo tank boundary line shall run parallel to the line of the midship flat bottom as shown in [figure 3](#); and

.2 be provided with cargo tanks so arranged that the capacity of each cargo tank does not exceed 700 m<sup>3</sup> unless wing tanks or spaces are arranged in accordance with paragraph 3.1 of this

regulation, complying with the following:

$$w = 0.4 + \frac{2.4DW}{20,000}(\text{m}) \text{ with a minimum value of } w = 0.76\text{m}.$$

SEE [INTERPRETATION 41](#)

7 Oil shall not be carried in any space extending forward of a collision bulkhead located in accordance with [regulation II-1/11](#) of the International Convention for the Safety of Life at Sea, 1974, as amended. An oil tanker that is not required to have a collision bulkhead in accordance with that regulation shall not carry oil in any space extending forward of the transverse plane perpendicular to the centreline that is located as if it were a collision bulkhead located in accordance with that regulation.

8 In approving the design and construction of oil tankers to be built in accordance with the provisions of this regulation, Administrations shall have due regard to the general safety aspects including the need for the maintenance and inspections of wing and double bottom tanks or spaces.

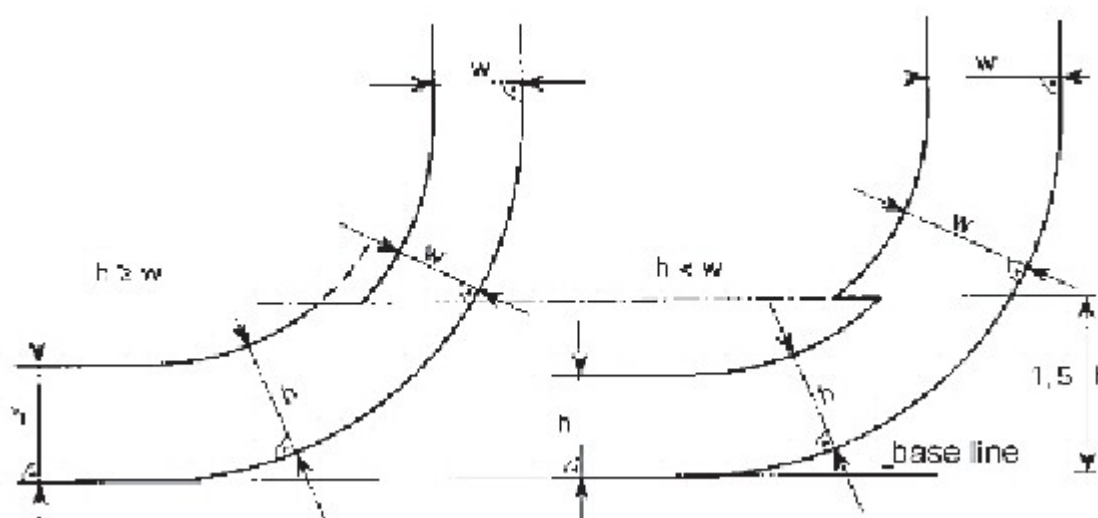


Figure 1 Cargo tank boundary lines for the purpose of paragraph 3

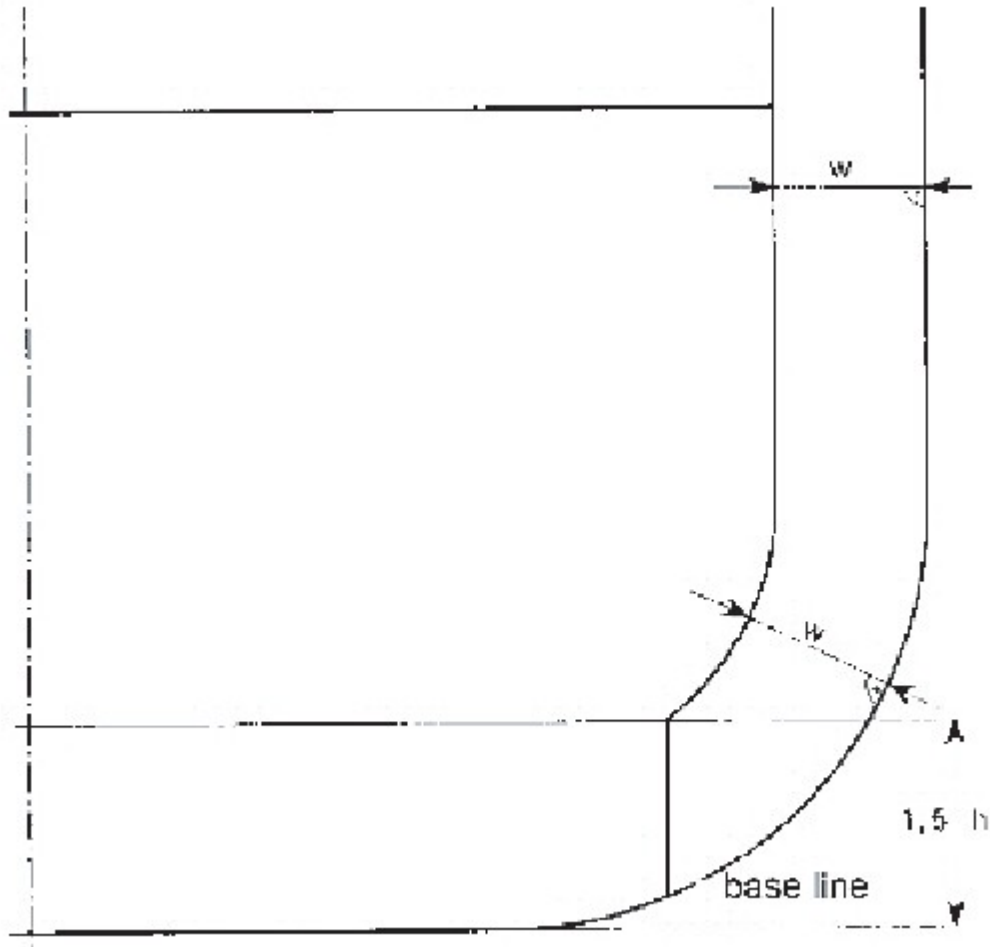
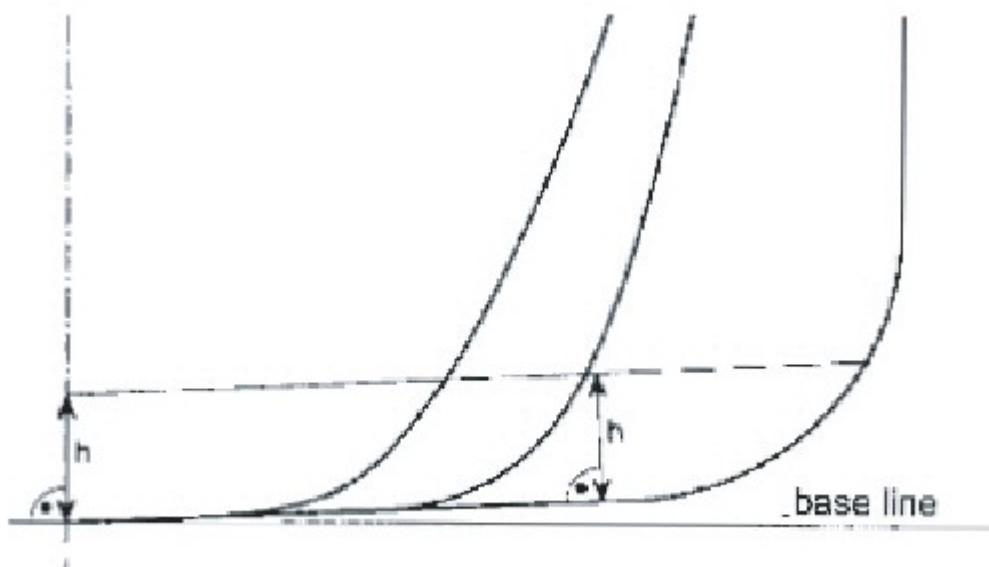


Figure 2 Cargo tank boundary lines for the purpose of paragraph 4



### Figure 3 Cargo tank boundary lines for the purpose of paragraph 6

Parent topic: [Part A - Construction](#)

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