

Timber.

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, ~~SAILING SHIP, TANKER.~~)

Index No. **35291**
(For London Office only).

Ship's Name M.S. "BOTHNIA"	Official Number	Nationality and Port of Registry Dutch. Rotterdam.	Gross Tonnage	Date of Build 1937.	Port of Survey Rotterdam.
Moulded Dimensions: Length 48.00 M Breadth 8.30 M Depth 3.55 M.					Date of Survey Building.
Moulded displacement at moulded draught = 85 per cent. of moulded depth 906 M³ tons					Surveyor's Signature G. Lodder.
Coefficient of fineness for use with Tables .754					Particulars of Classification 100 A1. Contemplated.

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth 3.55	(a) Where D is greater than Table depth (D—Table depth) R = + 36 m.m.	Moulded Breadth (B) Standard Round of Beam = $\frac{B \times 12}{50} =$
Stringer plate01	(b) Where D is less than Table depth (if allowed) (Table depth—D) R = ✓	Ship's Round of Beam =
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ ✓	If restricted by superstructures ✓	Difference
Depth for Freeboard (D) = 3.56		Restricted to Correction = $\frac{\text{Diff}^*}{4} \times \left(1 - \frac{S_1}{L} \right) =$ NIL.

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed						Standard Height of Superstructure 1830
.. overhang						" " R.Q.D. 1029
R.Q.D. enclosed						Deduction for complete superstructure 553.
.. overhang						Percentage covered $\frac{S}{L} =$ 39.84
Bridge enclosed						" " $\frac{S_1}{L} =$ 39.25
.. overhang aft						" " $\frac{E}{L} =$ 39.25
.. overhang forward						Percentage from Table, Line A. TIMBER = 62.19.
Fore enclosed						(corrected for absence of forecastle (if required))
.. overhang						Percentage from Table, Line B. ✓
Trunk aft						(corrected for absence of forecastle (if required)) ✓
.. forward						Interpolation for bridge less than 2L (if required) ✓
Tonnage opening aft						Deduction = 553 × .6219 = 344 m.m.
" " forward						
Total	19.12	18.84			18.84	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P.		1					1			Mean actual sheer aft =
$\frac{1}{3}L$ from A.P.		4					4			Mean standard sheer aft =
$\frac{2}{3}L$ "		2					2			Mean actual sheer forward =
Amidships		4					4			Mean standard sheer forward =
$\frac{2}{3}L$ from F.P.		2					2			Length of enclosed superstructure forward of amidships =
$\frac{1}{3}L$ "		4					4			" " aft of " =
F.P.		1					1			
Total				588.6					7434	

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) =$ **-47 m.m.**
If limited on account of midship superstructure. **Yes - Nil.**

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft.

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)	
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line $\Delta = 1052.3 \text{ M}^3$	Correction for coefficient ✓	420 m.m.
Depth to Freeboard Deck = 3.56	Tons per inch immersion at summer load water line $T = 3.53$	Depth Correction	443 m.m.
Summer freeboard = .14	Deduction = $\frac{\Delta}{40T}$ inches m.m. = 75 m.m.	Deduction for superstructures	
Moulded draught (d) = 3.42	= 8 cms.	Sheer correction	
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{48}$ inches = 71 = 4 cms.		Round of Beam correction	
Addition for Winter North Atlantic Freeboard (if required) = $\frac{d}{36} = 95 \text{ m.m.} = 10 \text{ cms.}$		Correction for Thickness of Deck amidships	
		Other corrections, scantlings, etc.	
		36 344 - 508	
		Summer Freeboard = 135 m.m.	

TIMBER SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Wood~~, Steel, Deck: **= 14 cms. 135**

TIMBER	Tropical Fresh Water Line above Centre of Disc	36 cms. 354	TIMBER	Tropical Fresh Water Freeboard ...	1
"	Fresh Water Line	29 " 293	"	Fresh Water	60 6
"	Tropical Line	28 " 289	"	Tropical	64 7
"	Winter Line	11 " 123	"	Winter	280 24
"	Winter North Atlantic Line	1.2 " 117	"	Winter North Atlantic	470 47

8 JUN 1937

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SUMMER

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