

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name Norfolk EMPIRE DIAMOND STORO	Official Number 9708 168607	Nationality and Port of Registry Belfast HARNOSAND British OSLO	Gross Tonnage 8236	Date of Build 1941	Port of Survey Belfast
Moulded Dimensions: Length 460 Breadth 59 Depth 34	Moulded displacement at moulded draught = 85 per cent. of moulded depth 17739 tons	Coefficient of fineness for use with Tables 791	Date of Survey during construction		
Surveyor's Signature Wm Balfour			Particulars of Classification HULL Class Conf. - Carrying Petroleum which		

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... 34.0	(a) Where D is greater than Table depth (D - Table depth) R = (34.07 - 30.67) x 3 = +10.20"	Moulded Breadth (B) 59 Standard Round of Beam = $\frac{B \times 12}{50} = \frac{59 \times 12}{50} = 14.16$ Ship's Round of Beam = 14 3/4"
Stringer plate ... 80"	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Difference .59"
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ none	If restricted by superstructures	Restricted to
Depth for Freeboard (D) = 34.07		Correction = $\frac{\text{Diff}^*}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.59}{4} \times .5830 = -.09"$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed Equi ...	95.00	95.00	7.5'	-	95.00
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed Equi ...	46.86	46.86	7.5'	✓	46.86
" overhang aft ...	2.50	1.88			1.88
" overhang forward					
Fore enclosed ...	48.04	48.04	7.5'	✓	48.04
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" " forward					
Total ...	191.40	191.78			191.78

Standard Height of Superstructure	7.5'
" " R.Q.D.	✓
Deduction for complete superstructure	42"
Percentage covered $\frac{S}{L} =$	41.83
" " $\frac{S_1}{L} =$	41.70
" " $\frac{E}{L} =$	41.70
Percentage from Table, Line Tankers	32.70
(corrected for absence of forecastle (if required))	✓
Percentage from Table, Line B.	✓
(corrected for absence of forecastle (if required))	✓
Interpolation for bridge less than 2L (if required)	✓
Deduction =	42 x 32.70 = -13.73"

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	56.00	1		56.00	56.4	56.4	1		56.4
1/2 L from A.P. ...	24.92	4		99.68	25.0	25.0	4		100.0
3/8 L " ...	6.16	2		12.32	6.2	6.2	2		12.4
Amidships ...	-	4		-	-	-	4		-
3/8 L from F.P. ...	12.32	2		24.64	12.4	12.4	2		24.8
1/2 L " ...	49.84	4		199.36	50.0	50.0	4		200.0
F.P. ...	112.00	1		112.00	112.1	112.1	1		112.1
Total ...				504.00					505.7

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{1.7}{18} (.75 - \frac{1092}{5408}) = -.05"$
 If limited on account of midship superstructure. ✓

Mean actual sheer aft =	} Excess.
Mean standard sheer aft =	
Mean actual sheer forward =	}
Mean standard sheer forward =	
Length of enclosed superstructure forward of amidships =	} Tanker.
" " aft of " =	

Deduction for Tropical Freeboard.
Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = **34.07** Ft.
Summer freeboard = **6.71**
Moulded draught (d) = **27.36**

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = **6.84 = 6 3/4"**

Addition for Winter North Atlantic Freeboard (if required) = **6.84 + 4.60 = 11.44 = 11 1/2"**

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$ **16791**

Tons per inch immersion at summer load water line

T = **56.41**

Deduction = $\frac{\Delta}{40T}$ inches

= $\frac{16791}{40 \times 56.41} = 7.44 = 7 1/2"$

28 **8.21** **T.P. 1**

28 **1715** **56.6**

27 **16439** **56.2**

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{791 + .68}{1.36} = 1.471/1.36$

	+	-
Depth Correction ...	10.20	-
Deduction for superstructures ...	-	13.73
Sheer correction ...	-	.05
Round of Beam correction ...	-	.09
Correction for Thickness of Deck amidships	-	-
Other corrections, scantlings, etc. ...	-	-

10.20 13.87 -3.67

Summer Freeboard = **80.38**

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~from~~ Steel, Deck:

Tropical Fresh Water Line above Centre of Disc	14 1/4"	362
Fresh Water Line	7 1/2"	191
Tropical Line	6 3/4"	171
Winter Line below	6 3/4"	171
Winter North Atlantic Line	11 1/2"	292

Tropical Fresh Water Freeboard	6' - 8 1/2"	2045 mm
Fresh Water	5' - 6 1/4"	1683
Tropical	6' - 1"	1854
Winter	6' - 13/4"	1874
Winter North Atlantic	7' - 3 3/4"	2216
	7' - 8"	2337

Storo.

A new form should be prepared if any alterations that affect the freeboard have been made. If no such alterations have been made, the Surveyor should endorse the form on this side with his signature and the date.

Equivalent bulkheads

Depth.	92.58	
$3' - 7\frac{1}{2} \times \frac{2}{3}$	2.42	
	<u>95.00</u>	= equi length

Bridge	43.83	
$4' - 6\frac{1}{2} \times \frac{2}{3}$	3.03	
	<u>46.86</u>	= equi

Trade of ship

Yankee

Names of sister ships

Derwentdale

Builder's name and yard number

Harland & Wolff's No 1053

Owners

Admiralty M.O.S brand

Fee £



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Foundation