

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

27 JAN 1943

Ship's Name EMPIRE COURAGE CERAM. AMSTELTOREN.	Official Number	Nationality and Port of Registry BRITISH DUTCH GLASGOW AMSTERDAM	Gross Tonnage 7088.85	Date of Build 1942	Port of Survey GLASGOW.
Moulded Dimensions: Length } 410.60 Breadth 57.25 Depth (UPPER DK.) 38'0" To CR. OF STOCK. } (2ND DK.) 29.46"					Date of Survey WHILE BUILDING.
Moulded displacement at moulded draught = 85 per cent. of moulded depth (UPPER DK.) 16680 tons " " " " " " " " (2ND DK.) 12470					Surveyor's Signature R. Dunsmeier
Coefficient of fineness for use with Tables .768					Particulars of Classification +100A1 WITH FREE⁸⁰ (CONTEMPLATED) CORRESPONDING TO 18" OVER C.S.S. WITH TONNAGE OPENING.

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... 38'0"	(a) Where D is greater than Table depth (D-Table depth) R = (38'06 - 27'39)3 = +32'01" 10.67	Moulded Breadth (B) 57.25
Stringer plate ... 0.66"06	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = ✓	Standard Round of Beam = $\frac{B \times 12}{50} =$ 13.74
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ NIL	If restricted by superstructures ✓	Ship's Round of Beam = 14.5
Depth for Freeboard (D) = 38'06		Difference EXCESS = .76"
		Restricted to ✓
		Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.76}{4} \times .9257 = -.18"$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...					
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...					
" overhang aft ...					
" overhang forward ...					
F'cle enclosed ...	28.08	28.08	7'6"	✓	28.08
" overhang ...	3.0	2.46			2.46
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward ...					
Total ...	31.08	30.54			30.54

Standard Height of Superstructure 7.50
" " R.Q.D. ✓
Deduction for complete superstructure 42.00
Percentage covered $\frac{S}{L} =$ 7.56%
" $\frac{S_1}{L} =$ 7.43%
" $\frac{E}{L} =$ 7.43%
Percentage from Table, Line A. 3.72 (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 = 42.00 x .0372 = - 1.56"

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	51.09	1		51.09	38.75	38.75	1		38.75
$\frac{1}{2}$ L from A.P. ...	22.735	4		90.94	16.0	16.00	4		64.00
$\frac{2}{8}$ L " ...	5.62	2		11.24	4.0	4.00	2		8.00
Amidships ...	-	4		-	0	-	4		-
$\frac{2}{8}$ L from F.P. ...	11.24	2		22.48	9.25	9.25	2		18.50
$\frac{1}{2}$ L " ...	45.47	4		181.88	37.25	37.25	4		149.00
F.P. ...	102.19	1		102.19	84.0	84.00	1		84.00
Total ...				459.82					362.25

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) = \frac{97.57}{18} \left(\frac{75-.0378}{.7122} \right) = +3.86$

If limited on account of midship superstructure.

Mean actual sheer aft = **DEFICIENT**
Mean standard sheer aft

Mean actual sheer forward = **DEFICIENT .821 STANDARD**
Mean standard sheer forward

Length of enclosed superstructure forward of amidships = **NIL**
aft of " = **SHEER FORWARD**

11.24	3	33.72	9.25	3	27.75
45.47	3	136.41	37.25	3	111.75
102.19	1	102.19	84.00	1	84.00
272.32			223.50		

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)	74.90 + 1.58
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient .768 + .68	81.42
Depth to Freeboard Deck = 38'06	$\Delta =$ 13865	Depth Correction ... 32'01	
Summer freeboard = 10'66	Tons per inch immersion at summer load water line	Deduction for superstructures ... - 1.56	82.8
Moulded draught (d) = 27'40	T = 48.39	Sheer correction ... 3.86	8-1.43
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 6.85 = 6 $\frac{3}{4}$"	Deduction = $\frac{\Delta}{40T}$ inches = 7.16 = 7 $\frac{1}{4}$"	Round of Beam correction18	
Addition for Winter North Atlantic Freeboard (if required) = ✓	DRAFT FULL DISP (SW) T.P.I.	Correction for Thickness of Deck amidships ... -	
SPECIFIED LOAD DRAFT 27'6"	28'0" 13115 47.87	Other corrections, scantlings, etc. To CORRESPOND TO A SUMMER MOULDED DRAUGHT OF 27'4 $\frac{3}{4}$"	48.32 1.74 + 46.58
	28'0" 14270 48.57	Summer Freeboard = 128.00	

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:	3251	10'18"	325
Tropical Fresh Water Line above Centre of Disc	354	14"	35 $\frac{1}{2}$ and
Fresh Water Line	184	7 $\frac{1}{4}$"	18 $\frac{1}{2}$"
Tropical Line	171	6 $\frac{3}{4}$"	17
Winter Line below	171	6 $\frac{3}{4}$"	17
Winter North Atlantic Line	✓		
Tropical Fresh Water Freeboard	2895	9'6"	289.5
Fresh Water	3067	10'0 $\frac{3}{4}$"	306.5
Tropical	3080	10'1 $\frac{1}{4}$"	308
Winter	3422	11'2 $\frac{3}{4}$"	342
Winter North Atlantic	✓		

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.

FOR BASIC COMPUTATION SEE EMPIRE HIGHWAY NO 36927.

Trade of ship INTERNATIONAL TRADE

Names of sister ships "EMPIRE HIGHWAY" GLASGOW RPT. NO 65929.

Builder's name and yard number BARCLAY CURLE & CO. LTD. NO 689

Owners MINISTRY OF WAR TRANSPORT

EST. Fee £ 17 : 0 : 0

PLAN OF MIDSHIP SECTION, PROFILE, STERNPOST & RUDDER ARE FORWARDED FOR REFERENCE.
FREEBOARD REQUEST ATTACHED.



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