

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

now named ZEPHYR as Helmsing for.

Computation of Freeboard for Steamer, ~~Sailing Ship, Tanker~~
having Poop, Raised Quarter deck & Forecastle

(Type of Superstructures.)

Ship's Name DEVA.	Nationality and Port of Registry Spanish Barcelona	Official Number 2151	Gross Tonnage 5,969	Date of Build 1907-5
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Moulded Dimensions: Length 288.87 Breadth 42.6 Depth 19.7
Moulded displacement at moulded draught = 85 per cent. of moulded depth 4600 m³
Coefficient of fineness for use with Tables .795

Port of Survey Bilbao
Date of Survey 12th & 13th Dec. 1932.
Name of Surveyor G. Dixon.
Particulars of Classification +100A1
S.S. Sub. No. 3 - P. 20.
S.S. Bto. No. 2-29.

Depth for Freeboard (D) <u>5.969</u> Moulded depth <u>19.7</u> Stringer plate <u>12</u> Sheathing on exposed deck <u>✓</u> $T \left(\frac{L-S}{L} \right) =$ Depth for Freeboard (D) = <u>19.75</u>	Depth correction (a) Where D is greater than Table depth (D - Table depth) R = $(8.33) 5.981 - 5.870 = 1.111 = 21.$ (b) Where D is less than Table depth (if allowed) (Table depth - D) R = If restricted by superstructures	Round of Beam correction <u>12.954</u> Moulded Breadth (B) <u>42.6</u> Standard Round of Beam = $\frac{B \times 12}{50} = \frac{259}{50} = 5.18$ Ship's Round of Beam = <u>26.7</u> Difference <u>8</u> Restricted to Correction = $\frac{\text{Diff.}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{8}{4} \left(0.996 \right) = 1.992$
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DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S)	Height	Height Correction	Effective Length (E)	
Poop enclosed ...	<u>4.520</u>	<u>4.520</u>	2109		<u>4.520</u>	Standard Height of Superstructure <u>1950</u>
" overhang ...	<u>30.480</u>	<u>30.480</u>			<u>26.430</u>	" " R.Q.D. <u>1378</u>
R.Q.D. enclosed ...	<u>100</u>	<u>100</u>	1195	<u>1195</u>	<u>3.92</u>	Deduction for complete superstructure <u>874</u>
" overhang ...	<u>35.357</u>	<u>35.357</u>			<u>6.92</u>	Percentage covered $\frac{S}{L} = 90.04$
Bridge enclosed ...	<u>116</u>	<u>116</u>	2109		<u>6.92</u>	" " $\frac{S_1}{L} = 90.04$
" overhang aft ...	<u>✓</u>	<u>✓</u>			<u>✓</u>	" " $\frac{E}{L} = 85.85$
" overhang forward ...	<u>✓</u>	<u>✓</u>			<u>✓</u>	Percentage from Table, Line A. <u>82.06</u>
Fore enclosed ...	<u>2.934</u>	<u>2.934</u>	2109		<u>7.42</u>	(corrected for absence of forecastle (if required))
" overhang ...	<u>2.25</u>	<u>2.25</u>			<u>✓</u>	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 = <u>717</u>
" forward ...						
Total ...	<u>79.291</u>	<u>79.291</u>			<u>75.241</u>	

SHEER CORRECTION.

Station	Standard Ordinate	S	Product	Actual Ordinate	Effective Ordinate	S	Product	
A.P. ...	<u>988</u>	1	<u>988</u>	<u>1283</u>	<u>1,283</u>	1	<u>1,283</u>	Mean actual sheer aft = <u>Excess</u>
$\frac{1}{2}$ L from A.P. ...	<u>439</u>	4	<u>1756</u>	<u>482</u>	<u>482</u>	4	<u>1,928</u>	Mean actual sheer forward = <u>Excess</u>
" ...	<u>110</u>	2	<u>220</u>	<u>120</u>	<u>120</u>	2	<u>240</u>	Mean standard sheer aft =
Amidships ...	<u>4</u>	4	<u>✓</u>	<u>✓</u>	<u>✓</u>	4	<u>✓</u>	Mean standard sheer forward =
$\frac{1}{2}$ L from F.P. ...	<u>269</u>	2	<u>538</u>	<u>306</u>	<u>306</u>	2	<u>612</u>	Length of enclosed superstructure forward of amidships = <u>30</u>
$\frac{1}{4}$ L " ...	<u>878</u>	4	<u>3512</u>	<u>1,224</u>	<u>1,224</u>	4	<u>4,896</u>	" " aft of " = <u>50</u>
F.P. ...	<u>1975</u>	1	<u>1975</u>	<u>2,946</u>	<u>2,946</u>	1	<u>2,946</u>	
Total ...			<u>8889</u>				<u>11,905</u>	

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75 - S}{2L} \right) = \frac{8,889}{18} \left(\frac{75 - 45.02}{2 \times 288.87} \right) = 50.74$
If limited on account of midship superstructure.

Deduction for Tropical Freeboard. Addition for Winter and Winter North Atlantic Freeboard. Depth to Freeboard Deck = <u>5,981</u> Summer freeboard = <u>377</u> Moulded draught (d) = <u>5604</u> Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{48} \text{ inches} = 117.5$ Addition for Winter North Atlantic Freeboard (if required) = <u>51</u>	Deduction for Fresh Water. Displacement in salt water at summer load water line $\Delta =$ Tons per inch immersion at summer load water line $T =$ Deduction = $\frac{\Delta}{40T}$ inches <u>117.5</u>	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient $\frac{795 + 62}{1.26} = 1475$ <table border="1"> <tr> <th></th> <th>+</th> <th>-</th> </tr> <tr> <td>Depth Correction ...</td> <td><u>21</u></td> <td></td> </tr> <tr> <td>Deduction for superstructures ...</td> <td><u>717</u></td> <td></td> </tr> <tr> <td>Sheer correction ...</td> <td><u>50</u></td> <td></td> </tr> <tr> <td>Round of Beam correction ...</td> <td></td> <td></td> </tr> <tr> <td>Correction for Thickness of Deck amidships ...</td> <td></td> <td></td> </tr> <tr> <td>Other corrections, scantlings, etc. ...</td> <td></td> <td></td> </tr> <tr> <td></td> <td><u>21</u></td> <td><u>767</u></td> </tr> </table> Summer Freeboard = <u>377</u>		+	-	Depth Correction ...	<u>21</u>		Deduction for superstructures ...	<u>717</u>		Sheer correction ...	<u>50</u>		Round of Beam correction ...			Correction for Thickness of Deck amidships ...			Other corrections, scantlings, etc. ...				<u>21</u>	<u>767</u>
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc ...	<u>234</u>	<u>9.22</u>	Tropical Fresh Water Freeboard ...	<u>143</u>	<u>5.62</u>
Fresh Water Line " " ...	<u>117</u>	<u>4.61</u>	Fresh Water " " ...	<u>260</u>	<u>10.23</u>
Tropical Line " " ...	<u>117</u>	<u>4.61</u>	Tropical " " ...	<u>260</u>	<u>10.23</u>
Winter Line below " " ...	<u>117</u>	<u>4.61</u>	Winter " " ...	<u>494</u>	<u>19.45</u>
Winter North Atlantic Line " " ...	<u>168</u>	<u>6.61</u>	Winter North Atlantic " " ...	<u>545</u>	<u>21.45</u>

30 DEC 1932

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
Description of Hatchway	Nº 1 FREEBOARD DK.	Nº 2 BRIDGE DK.	Nº 3 R.Q. DK.	Nº 4 R.Q. DK.	Nº 5 FREEBOARD DK.	Nº 6 POOP DK.	2 COALING HATCHES ON BRIDGE DK.	TUNNEL ESCAPE R.Q. DK.	2 COALING HATCHES ON BRIDGE DK.	2 COALING HATCHES ON BRIDGE DK.
Dimensions of Hatchway	26'0" x 16'0"	do.	do.	do.	do.	16'0" x 5'9"	8'0" x 3'4"	22'0" x 27'	do.	do.
COAMINGS	Height above Deck ... 36"	do.	do.	do.	do.	13"	30"	42"	do.	do.
	Thickness ... 5"	do.	do.	do.	do.	5"	14"	38"	do.	do.
	Stiffeners ... 3/4" x 3/8"	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Brackets, Stays ... NONE	do.	do.	do.	do.	do.	do.	do.	do.	do.
HATCH BEAMS	Number ... 2	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Spacing ... 8'8"	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Scantling and Sketch ...	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Angles ... 3" x 3" x 36"	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Bearing Surface ... 3"	do.	do.	do.	do.	do.	do.	do.	do.	do.
FORE AND AFTERS	Number ... 3	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Spacing ... 3'6"	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Unsupported Lengths ... 8'2"	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Scantling and Sketch ...	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Bearing Surface ... 3"	do.	do.	do.	do.	do.	do.	do.	do.	do.
HATCH COVERS	Material ... W. Pine	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Thickness ... 2 1/2"	do.	do.	do.	do.	do.	do.	do.	do.	do.
	How fitted ...	do.	do.	do.	do.	do.	do.	do.	do.	do.
	Bearing Surface ...	do.	do.	do.	do.	do.	do.	do.	do.	do.
Spacing of Cleats	20"	do.	do.	do.	do.	do.	do.	do.	do.	do.
Number of Tarpaulins	2	do.	do.	do.	do.	do.	do.	do.	do.	do.

Particulars of Hiddle, funnel and ventilator coamings:— Hiddle top 7'0" above Bridge deck. All openings in hiddle top are fitted with hinged steel covers and B.R. & E.R. vents have efficient coamings. E.R. skylight is of wood with hinged wood covers in good condition. Outer funnel casing direct to hiddle top. Boaling hatch on Hiddle top 3'3" x 12'3" x 12" boaming, fitted with 2 1/4" W. Pine covers having 2 1/2" bearing and efficient bracing arrangements.

Particulars of Flush Bunker Scuttles:— NONE.

Particulars of Companionways:— One steel companion on forecastle deck, base 3'9" x 3'0" x height 6'0", fitted with hinged steel door opening aft 4'9" x 1'10" x 12" sill, secured with lock & handle, capable of being manipulated from both sides.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—

Forecastle Bk:— 2- 8" Vents x 1/4" x 39" high
2- 4" " x 1/4" x 15" "
2- 17 1/2" Hold vents x 3/8" x 4'3" high
2- 17 1/2" " " x 3/8" x 9'6" "
Poop Deck:— 2- 8" Vents x 3/8" x 39" high.
Bridge Bk:— 2- 17 1/2" Hold vents x 3/8" x 4'3" high
2- 17 1/2" " " x 3/8" x 9'6" "
Stayed to deck house.
Raised Quarter Bk:— 3- 17 1/2" Hold vents x 3/8" x 4'3" high
2- 17 1/2" " " x 3/8" x 10'0" "
Stayed to E.R. casing
(All vents fitted with wood plugs & canvas covers)

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—

Forecastle Bk:— 1 Goose-neck type 2" dia x 36" high

Bridge Bk:— 6 " " 2" " x 30" " each side

R.Q. Deck:— 4 " " 2" " x 34" " " "

Wood plugs & canvas covers fitted

Particulars of Gangway Cargo and Coaling Ports:— NONE

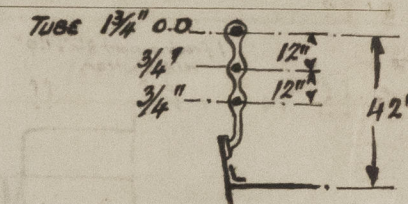
Particulars of Scuppers and Sanitary Discharge Pipes:— All scuppers fitted discharge over top of deck thus:— Forward well: 2 each side. Bridge deck: 4 each side. R.Q. Deck: 3 each side.

Sanitary discharges: 2 post side, W.C.s in deck houses on Bridge deck, discharging above foreboard deck in bridge space, fitted with storm valves. 1 post side from forecastle wing house discharging below foreboard deck, fitted with storm valve.

Particulars of Side Scuttles:— No side scuttles are situated below the foreboard deck. Side scuttles in forecastle space only 17 1/2" below deck provided with efficient inside deadlights permanently attached in their proper positions.

Particulars of Guard Rails:—

Efficient guard rails are fitted on all exposed portions of Poop & forecastle decks and the Bridge deck is fitted with efficient Bulwarks 39" high. (4 guard rails at ends)



Particulars of Gangways, Lifelines, etc.:— NONE.

Provision made for the use of lifelines which can be used in any part of the ship.

Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	100'0"	45"	3'0" x 1'9"	4	21 #	20.0
RAISED QUARTER DK.						
Forward Well	26'0"	45"	2'7" x 1'8"	3	12.9 #	9.5

State position of each freeing port (F. and A. position and height above deck edge) After Well:— 3rd position see sketch. Height above deck 12" (F. and A. position and height above deck edge) Forward Well:— 1st position see sketch. Height above deck 12"

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— R.Q. DK. 4-3 with 3 horizontal rails 1" shutter & 1 horizontal rail.

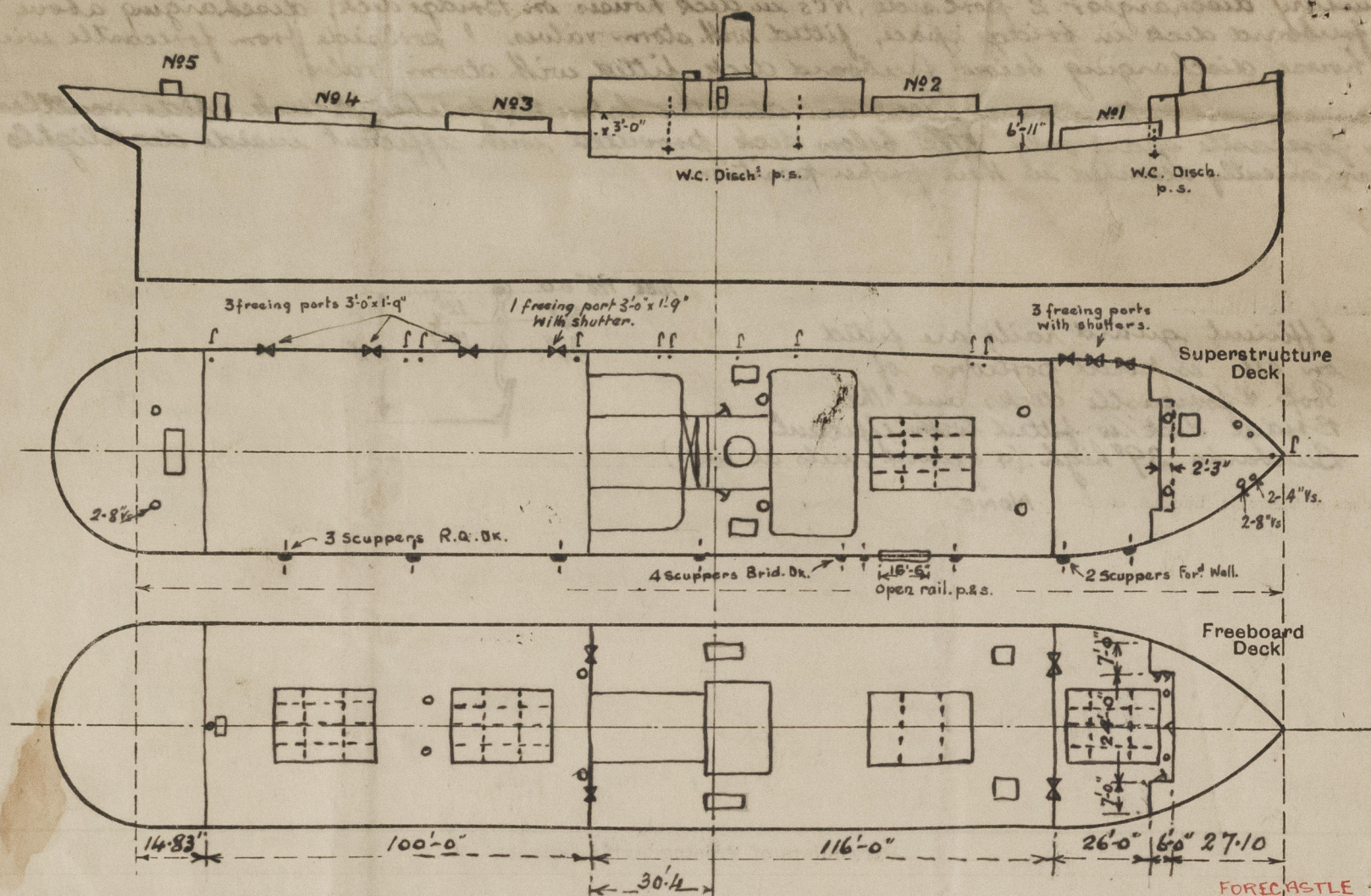
Additional area where sheer is less than standard. FOR WELL 1-11 " " " " " "

Particulars of Superstructures, Trunks, Casings, Deckhouses.								
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	1/16"	1/16"	5" x 3 1/2" x 38"	30"	NONE	NONE	✓	✓
Raised Quarter Deck Bulkhead	1/2"	1/2"	5" x 3 1/2" x 38"	27"	NONE		✓	✓
Bridge, After Bulkhead	"	"	"	"	"	TWO 27" x 21"	7"	✓
Bridge, Forward Bulkhead	1/16"	3/8"	6" x 3 1/2" x 4"	30"	Brackets 1/4" & bottom	TWO 4'9" x 3'0"	22"	✓
Forecastle Bulkhead	3/8"	5/16"	4 1/2" x 3" x 36"	30"	NONE	FOUR 4'9" x 1'10"	21"	✓
Trunk, Aft	✓							
Trunk, Forward	✓							
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	✓							
Exposed Machinery Casings on Superstructure Decks	3/8"	3/8"	3 1/2" x 3 1/2" x 36"	24"	NONE	1 R. 5 (EXPOSED) 4'9" x 2'2"	18"	7'0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	✓							
Deckhouses on Flush Deck Ships	✓							

Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	NONE	2 doors no openings
Raised Quarter Deck Bulkhead	NONE	2 doors no openings
Bridge, After Bulkhead	13 bolted steel plates, 3/4" dia bolts x 5" pitch.	
Bridge, Forward Bulkhead	Hinged steel doors secured by 3/4" dia bolts x 6" pitch, all round.	
Forecastle Bulkhead	Hinged steel doors, secured by lock & handle, capable of being manipulated from both sides.	
Exposed Machinery Casings on Freeboard or Raised Quarter Decks		
Exposed Machinery Casings on Superstructure Decks		
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel doors in halves with lock & handle, capable of being manipulated from both sides.	
Deckhouses on Flush Deck Ships	✓	

Superstructure, bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shown on the following sketches:—



Note: Vessel surveyed afloat.

No wood sheathing fitted.

$$\begin{aligned} \text{FORECASTLE} \\ 27.10 + 6.0 &= \frac{24 \times 6}{38} \\ &= 3.79 \\ &= 29.31 = 8.934 \end{aligned}$$

State any special features in the construction of the ship:— Particulars for the carriage of Timber Deck cargoes.

- (1) Double bottom tanks for $\frac{1}{2}$ L amidships have longitudinal subdivision.
- (2) Bulwarks fitted to forward well, R.A. Dk. & Bridge Dk. Plating $\frac{5}{16} \times 3'-9"$ high. Stays $7 \times \frac{3}{8}$ B.P. spaced $3'-9"$ apart & Bulwark rail $6 \frac{1}{2} \times 3 \times \frac{7}{16}$ B.A. except on Bridge Dk. where plating $\frac{1}{4} \times 3'-3"$ high, stays $7 \times \frac{3}{8}$ B.P. spaced $8'-0"$ apart & rail $6 \times 3 \times \frac{3}{8}$ B.A.
- (3) Protection to Hold vents: cargo stowed will clear of all hold vents forming ample space round same.
- (4) Access to Crew's quarters & Machinery space: Access to crew's quarters fwd. through companion on f'le. dk. & cargo on fwd. end of bridge deck stowed so as to form a ladderway over which the crew pass from the f'le. dk. to after end of Brid. dk. Access to machinery space through casings on after end of Brid. Dk, clear of deck cargo. No deck cargo carried on Poop & forecastle decks.
- (5) Protection of Main steering gear: cargo stowed will clear of chains, rods & quadrants. Stand steering gear on poop deck clear of deck cargo.
- (6) Sockets for uprights are fitted on R.A. Dk., fwd. end of Brid. Dk. & on fwd. well dk, spaced about $10'-0"$ apart.
- (7) Lashings for deck cargo are runned through shackles in Bulwark stays.

Builder's name and yard number Eiderwerft Akt. Ges Yard N° 71

Names of sister ships ☒

Owners Soc. Anon. Marit Halon

Fee Pl 643

Received by me



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Lloyd's Register
Foundation