

REPORT ON MACHINERY.

Received at London Office

FRI, APR. 4-1913

Date of writing Report *24th March 1913* When handed in at Local Office

Port of *Bremen*

No. in Survey held at *Geestmünde & Bremen* Date, First Survey *30th Sept 1912* Last Survey *20th March 1913*

Reg. Book. *Sup 107* on the *Steu Jo 4 Mast Jr ALDA* (Number of Visits *22*)

Tons { Gross *6206*
Net *4180*
When built *1913*

Master *G. Kördin* Built at *Geestmünde* By whom built *Joh. G. Tecklenborg A.G.*

Engines made at *Geestmünde* By whom made *Joh. G. Tecklenborg A.G.* when made *1913*

Boilers made at *Geestmünde* By whom made *Joh. G. Tecklenborg A.G.* when made *1913*

Registered Horse Power *722* Owners *Roland Linie Akt. Ges.* Port belonging to *Bremen*

Nom. Horse Power as per Section 28 *722* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *yes*

ENGINES, &c.—Description of Engines *Quadruple Expansion Surface Condensing* No. of Cylinders *4* No. of Cranks *4*

Dia. of Cylinders *27 3/16, 39 3/8, 55 1/4, 82 1/16* Length of Stroke *53 15/16* Revs. per minute *75* Dia. of Screw shaft *as per rule 16 7/16* Material of screw shaft *as fitted 17-0*

Is the screw shaft fitted with a continuous liner the whole length of the stern tube *yes* Is the after end of the liner made water tight in the propeller boss *yes*

If the liner is in more than one length are the joints burned *yes* If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *yes*

If two liners are fitted, is the shaft lapped or protected between the liners *yes* Length of stern bush *70"*

Dia. of Tunnel shaft *as per rule 14 1/16* Dia. of Crank shaft journals *as per rule 15 7/16* Dia. of Crank pin *15 3/4* Size of Crank webs *10 1/32* Dia. of thrust shaft under collars *15 9/16*

Dia. of screw *240 3/16* Pitch of Screw *220 1/2* No. of Blades *4* State whether moveable *yes* Total surface *118.95 sq'*

No. of Feed pumps *2* Diameter of ditto *3 3/4* Stroke *27 9/16* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *2* Diameter of ditto *4 5/16* Stroke *27 9/16* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *4* Sizes of Pumps *Given on other side* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *and stokehold 6 @ 3 1/2" dia* In Holds, &c. *2 in each hold 3 1/2" dia, 1 in tunnel 3 1/2" dia.*

No. of Bilge Injections *1* sizes *10"* Connected to condenser, or to circulating pump *yes* Is a separate Donkey Suction fitted in Engine room & size *yes 3 1/2"*

Are all the bilge suction pipes fitted with roses *yes* Are the roses in Engine room always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*

Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *valves & cocks*

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *yes* Are the Discharge Pipes above or below the deep water line *both*

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel *yes* Are the Blow Off Cocks fitted with a spigot and brass covering plate *yes*

What pipes are carried through the bunkers *Bilge suction pipes* How are they protected *wooden casings*

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *yes*

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges *yes*

Dates of examination of completion of fitting of Sea Connections *3/2.13* of Stern Tube *3/2.13* Screw shaft and Propeller *3/2.13*

Is the Screw Shaft Tunnel watertight *yes* Is it fitted with a watertight door *yes* worked from *platform above upper deck.*

BOILERS, &c.—(Letter for record *S.*) Manufacturers of Steel *Fried. Krupp, Essen and Rheinische Stahlwerke, Duisburg.*

Total Heating Surface of Boilers *10112* Is Forced Draft fitted *yes* No. and Description of Boilers *4 cylindrical multitubular*

Working Pressure *213 lbs* Tested by hydraulic pressure to *426 lbs* Date of test *14 & 29/11.12* No. of Certificate *40, 41, 42, 43.*

Can each boiler be worked separately *yes* Area of fire grate in each boiler *56.5 sq'* No. and Description of Safety Valves to each boiler *2 spring loaded*

Area of each valve *12.18 sq'* Pressure to which they are adjusted *213 lbs* Are they fitted with easing gear *yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *20"* Mean dia. of boilers *4-4 3/4* Length *11-9 3/4* Material of shell plates *1/2" steel*

Thickness *1 3/16* Range of tensile strength *27.9-32.4* Are the shell plates welded or flanged *flanged* Descrip. of riveting: cir. seams *double*

long. seams *quadruple* Diameter of rivet holes in long. seams *1 1/2* Pitch of rivets *19 5/16* Lap of plates or width of butt straps *29 9/16*

Per centages of strength of longitudinal joint rivets *92.2%* Working pressure of shell by rules *222 lbs* Size of manhole in shell *11 1/2 x 15 5/16*

Size of compensating ring *32 3/16 x 1 3/4* No. and Description of Furnaces in each boiler *3-Fire* Material *1/2" steel* Outside diameter *43 5/16*

Length of plain part top *8"* Thickness of plates crown *4 1/4* Description of longitudinal joint *welded* No. of strengthening rings *yes*

Working pressure of furnace by the rules *248 lbs* Combustion chamber plates: Material *1/2" steel* Thickness: Sides *11/16* Back *4 3/64* Top *11/16* Bottom *29/32*

Pitch of stays to ditto: Sides *8 1/4 x 6 7/8* Back *7 3/32* Top *7 1/6 x 7 1/8* stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *258 lbs*

Material of stays *1/2" steel* Diameter at smallest part *1 9/16* Area supported by each stay *53.10* Working pressure by rules *288* End plates in steam space:

Material *1/2" steel* Thickness *1 5/32* Pitch of stays *14 3/16 x 16 1/8* How are stays secured *with nuts* Working pressure by rules *252 lbs* Material of stays *1/2" steel*

Diameter at smallest part *3"* Area supported by each stay *233 sq'* Working pressure by rules *256* Material of Front plates at bottom *1/2" steel*

Thickness *1 3/32* Material of Lower back plate *1/2" steel* Thickness *6 3/64* Greatest pitch of stays *7 9/32* Working pressure of plate by rules *240*

Diameter of tubes *2 3/4* Pitch of tubes *3 1/5 1/6* Material of tube plates *1/2" steel* Thickness: Front *1 3/32* Back *2 9/32* Mean pitch of stays *7 7/8*

Pitch across wide water spaces *13 25/32* Working pressures by rules *219 lbs* Girders to Chamber tops: Material *1/2" steel* Depth and thickness of girder at centre *10 1/4 x 4 3/64*

Length as per rule *34 1/4* Distance apart *7 1/16* Number and pitch of stays in each *3-7 7/8*

Working pressure by rules *256 lbs* Superheater or Steam chest; how connected to boiler *yes* Can the superheater be shut off and the boiler worked separately *yes*

Diameter *yes* Length *yes* Thickness of shell plates *yes* Material *yes* Description of longitudinal joint *2020* Diam. of rivet holes *yes*

Pitch of rivets *yes* Working pressure of shell by rules *yes* Diameter of flue *yes* Material of flue plates *yes* Thickness *yes*

If stiffened with rings *yes* Distance between rings *yes* Working pressure by rules *yes* End plates: Thickness *yes* How stayed *yes*

Working pressure of end plates *yes* Area of safety valves to superheater *yes* Are they fitted with easing gear *yes*

If not, state whether, and when, one will be sent? As a Report also sent on the Hull of the Ship?

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Capacity.

Tons.

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VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description			
Made at	By whom made	When made	Where fixed	
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment
If fitted with easing gear	If steam from main boilers can enter the donkey boiler		Dia. of donkey boiler	Length
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams	
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Description of joint
Working pressure of furnace by rules	Thickness of furnace crown plates	Radius of do.	Stayed by	
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey	

SPARE GEAR. State the articles supplied:—1 crank shaft, 1 propeller shaft, 2 propeller blades, 2 crosshead brasses, 1 crank pin brass, 2 crank pin & crosshead brass bolts & nuts, 2 main bearing bolts, 2 sets of coupling bolts, 1 set of piston rings, 2 eccentric straps complete, 1 piston rod for air pump, 1 complete set of links, 1 set of safety valve springs, 2% of condenser and boiler tubes, 10% of bolts for cylinders, slide valve covers & pistons, 1 set of valves for air, feed & bilge pump, a quantity of assorted bolts, nuts, iron of various sizes.

The foregoing is a correct description,
 Schiffwerk und Maschinenfabrik Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1912: Sep 30, Oct 15, Nov 14, 15, 29, Dec 14. 1913: Jan 2, 15, 24, 31, Feb 3
 During erection on board vessel -- 1913: Feb 8, 17, 19, 22, March 1, 3, 5, 6, 13, 17, 20
 Total No. of visits 22

Dates of Examination of principal parts—Cylinders 30/9, 14/11 Slides 14/11 Covers 30/9, 14/11 Pistons 14/11 Rods 14/11
 Connecting rods 14/11 Crank shaft 24/1, 20/2 Thrust shaft 24/1 Tunnel shafts 24/1 Screw shaft 24/1, 3/2 Propeller 24/1, 3/2
 Stern tube 24, 3/2 Steam pipes tested 5/3, 6/3 Engine and boiler seatings 3/2 Engines holding down bolts 3/2
 Completion of pumping arrangements 13/3 Boilers fixed 17/2 Engines tried under steam 20/3
 Main boiler safety valves adjusted 17/3. Thickness of adjusting washers PORT: .25" CENTRE: .25" STAR: .25" FORE: .245" AFT: .275"
 Material of Crank shaft SM Steel Identification Mark on Do. No 4898/5576/ P.A. 6.12/7.A. 2.13 Material of Thrust shaft SM Steel Identification Mark on Do. No 745-16/1520-2/7449-50/ K.H. 4.12/7.A. 4.12
 Material of Tunnel shafts SM Steel Identification Marks on Do. No 1937/7449 K.H. 5.12 Material of Screw shafts SM Steel Identification Marks on Do. No 8.12/7.A. 4.12
 Material of Steam Pipes Steel Test pressure 640 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 Size of Pumps:— $\frac{10\frac{1}{4} \times 12\frac{5}{8}}{26\frac{7}{16}}$ $\frac{11 \times 7\frac{7}{8}}{26\frac{9}{16}}$ $\frac{9\frac{1}{2} \times 6\frac{5}{16}}{9\frac{3}{8}}$ $\frac{5\frac{5}{16} \times 3\frac{1}{16}}{5\frac{1}{16}}$

These Engines and Boiler have been manufactured in accordance with the approved plans, the Secretary's letters and otherwise in conformity with the Rules.

The material and workmanship are good.
 They are eligible in my opinion to be classed in the Society's Register Book with the notation **LMC 3,13.**

It is submitted that this vessel is eligible for THE RECORD. **LMC 3.13 F.D. ELEC. LIGHT.**

Y. H. C. Balm.
 5-4-13.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee	.. \$46 : 62.-	When applied for,
Special	.. £4 11.53.-	17.3.1912
Donkey Boiler Fee	.. £ :	When received,
Travelling Expenses (if any)	£4 100.-	27.3.1912

Committee's Minute TUE APR 9-1913
 Assigned *Home 3.13*

MACHINERY CERTIFICATE WRITTEN



Certificates (if required) to be sent to Registrar Office.

The Surveyors are requested not to write on or below the space for Committee's Minute.