

REPORT ON MACHINERY.

No. 1107

Port of *Bremerhaven*

WED. 8 NOV 1905

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No. in Survey held at *Geestmünde* Date, first Survey *15th April 1905* Last Survey *4th November 1905*
 Reg. Book. on the *steel screw steamer Hesperus* Yard No. *207* (Number of Visits)
 Master Built at *Geestmünde* By whom built *Joh. C. Tschlenberg A. G.* When built *1905*
 Engines made at *Geestmünde* By whom made *Joh. C. Tschlenberg A. G.* when made *1905*
 Boilers made at *Geestmünde* By whom made *Joh. C. Tschlenberg A. G.* when made *1905*
 Registered Horse Power *533* Owners *Norddeutscher Lloyd* Port belonging to *Bremen*
 Nom. Horse Power as per Section 28 *533* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Inverted vertical comp. surf. condensing* No. of Cylinders *4* No. of Cranks *4*
 Dia. of Cylinders *24 1/2" 34 5/8" 50" 72 1/2"* Length of Stroke *53 1/8"* Revs. per minute *70* Dia. of Screw shaft *as per rule 15 7/16" as fitted 15 3/4"* Material of *S.M. steel screw shaft*
 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 *one length* 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 *one lining for whole length* Length of stern bush *8' 8 1/2"*
 Dia. of Tunnel shaft *as per rule 13 1/2" as fitted 14"* Dia. of Crank shaft journals *as per rule 14 3/8" as fitted 14 3/4"* Dia. of Crank pin *14 3/4"* Size of Crank webs *14 3/4"* Dia. of thrust shaft under
 collars *14 3/4"* Dia. of screw *19 3/8"* Pitch of screw *20"* No. of blades *4* State whether moveable *Yes* Total surface *99.0*
 No. of Feed pumps *2* Diameter of ditto *3 3/4"* Stroke *26 9/16"* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *2* Diameter of ditto *4 3/8"* Stroke *26 9/16"* Can one be overhauled while the other is at work *Yes*
 No. of Donkey Engines *3* Sizes of Pumps *1 1/2" 2 1/2" 3 1/2"* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *4 in Engine and Boiler room a 3 1/2" diam.* In Holds, &c. *in each hold two a 3 1/2" diam., in tunnel one a 3 1/2" diam.*

No. of bilge injections *1* sizes *8" diam.* Connected to condenser, or to circulating pump *Circ. pump* Is a separate donkey suction fitted in Engine room & size *Yes*
 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*
 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 *above*
 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 boxes*
 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*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *Yes* Is the screw shaft tunnel watertight *Yes*
 Is it fitted with a watertight door *Yes* worked from *Upper deck*

BOILERS, &c.—(Letter for record *A*) Total Heating Surface of Boilers *7230* Is forced draft fitted *Yes*
 No. and Description of Boilers *3 multilubular cylindrical steel* Working Pressure *220 lb* Tested by hydraulic pressure to *292 lb*
 Date of test *18.9.21.9* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *55.9* No. and Description of safety valves to
 each boiler *two spring valves* Area of each valve *12 3/16"* Pressure to which they are adjusted *220 lb* Are they fitted with easing gear *Yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *12"* Mean dia. of boilers *14' 2 3/4"* Length *14' 2 3/4"* Material of shell plates *S.M. steel*
 Thickness *1 1/2"* Range of tensile strength *28-32* Are they 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 1/2"* Lap of plates or width of butt straps *29 1/4"*
 Per centages of strength of longitudinal joint *102%* Working pressure of shell by rules *230* Size of manhole in shell *11 7/8" X 15 3/4"*
 Size of compensating ring *9 7/8" X 1 1/2"* No. and Description of Furnaces in each boiler *3 Morrison's* Material *S.M. steel* Outside diameter *42 3/4"*
 Length of plain part *top 4" bottom 5"* Thickness of plates *top 1 1/2" bottom 1 1/4"* Description of longitudinal joint *welded* No. of strengthening rings *-*
 Working pressure of furnace by the rules *235* Combustion chamber plates: Material *S.M. steel* Thickness: Sides *4 3/4"* Back *4 3/4"* Top *4 3/4"* Bottom *9 1/2"*
 Pitch of stays to ditto: Sides *7 1/16"* Back *7 1/16"* Top *7 1/16"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *244*
 Material of stays *S.M. steel* Diameter at smallest part *1 1/2"* Area supported by each stay *56.2* Working pressure by rules *294* End plates in steam space:
 Material *S.M. steel* Thickness *1 1/8"* Pitch of stays *4 3/4" X 4 9/16"* How are stays secured *with nuts and washers* Working pressure by rules *269* Material of stays *S.M. steel*
 Diameter at smallest part *2 1/8"* Area supported by each stay *214* Working pressure by rules *290* Material of Front plates at bottom *S.M. steel*
 Thickness *1 3/8"* Material of Lower back plate *S.M. steel* Thickness *1"* Greatest pitch of stays *13 X 7 1/16"* Working pressure of plate by rules *296*
 Diameter of tubes *2 3/4"* Pitch of tubes *3 1/16"* Material of tube plates *S.M. steel* Thickness: Front *1 3/8"* Back *2 9/32"* Mean pitch of stays *9 7/8"*
 Pitch across wide water spaces *13 3/4"* Working pressures by rules *227* Girders to Chamber tops: Material *S.M. steel* Depth and
 thickness of girder at centre *10 1/4" X 2 5/16"* Length as per rule *35 1/16"* Distance apart *7 1/16"* Number and pitch of Stays in each *4 X 6 1/16"*
 Working pressure by rules *223* Superheater or Steam chest; how connected to boiler *Can the superheater be shut off and the boiler worked
 separately* Diameter *Length* Thickness of shell plates *Material* Description of longitudinal joint *Diam. of rivet
 holes* Pitch of rivets *Working pressure of shell by rules* Diameter of flue *Material of flue plates* Thickness
 If stiffened with rings *Distance between rings* Working pressure by rules *End plates: Thickness* How stayed
 Working pressure of end plates *Area of safety valves to superheater* Are they fitted with easing gear

009341-009349-0277

DONKEY BOILER— No. Description *Please see special Report on donkey boiler*

Made at By whom made When made Where fixed

Working pressure tested by hydraulic pressure to No. of Certificate Fire grate area Description of safety valves

No. of safety valves Area of each Pressure to which they are adjusted 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 Rivets 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

Thickness of furnace crown plates Stayed by Working pressure of shell by rules

Working pressure of furnace by rules Diameter of uptake Thickness of uptake plates Thickness of water tubes

SPARE GEAR. State the articles supplied:—*1 1/2 crank shaft, 1 propeller shaft with nut, 2 propeller blades, 1 propeller boss, 1 set of piston rings for each cylinder, 1 complete eccentric, 1 crankpin brass, 2 bolts and nuts for crankpin brasses, 2 ditto for crosshead, 4 bolts & nuts for main bearings, 1 set of coupling bolts, 1 slide valve spindle fitting for all slides, 1 air pump piston rod, 1 set of air pump valves, 1 set of feed pump valves, 1 set of bilge pump valves, 1 set of check valves, 1 set of leak brasses, 1 set of safety valve springs, 4 2 condenser tubes, 8 4 condenser stuffing boxes, 1 3 main boiler tubes, 4 donkey boiler tubes, 3 main boiler stay tubes, 2 donkey boiler stay tubes, 10 20 of bolts & nuts for cylinder covers, slide valve covers, air and circulating pump covers and for pistons, 1/2 set of fire bars, iron, bolts and washers of different sizes. For circulating pump 1 piston & rod, 3 main brasses and 2 bolts for same. For reversing engine 1 cylinder cover, 1 valve spindle, 1 piston rod and piston. For turning engine 1 cylinder cover, 1 valve spindle, and 1 piston & rod.*

The foregoing is a correct description,

JOH. C. TECKLENBORG A.G.
Schiffswerft und Maschinenfabrik
Hamburg

Dates of Survey while building	During progress of work in shops	15/4. 25. 13/5. 24/5. 1/6. 13. 28/6. 17. 18/7. 4/8. 9/8. 24/8. 2/9. 6/9. 9/9. 15/9
	During erection on board vessel	18/9. 2/10. 25/9. 5/10. 16/10. 18/10. 26/10. 4/11. 1905
	Total No. of visits	23.

Is the approved plan of main boiler forwarded herewith *Yes*

„ „ „ donkey „ „ „ *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c. *These Engines and Boilers have been built under special Survey of best material and good workmanship. All castings, as cylinders, valve casings, condenser, pumps and other casings, have been tested by hydraulic pressure, and all steam and feed pipes have been tested hydraulically by double working pressure and all found quite tight.*

The shafting, rods, etc., have been made of Siemens Martin steel manufactured at approved works and tested as per rule by the Surveyors at Düsseldorf and have been carefully fitted.

The Boilers have been built of Siemens Martin steel manufactured by Thyssen & Co tested as per rule and in accordance with the approved tracings.

At the special request of the owners the boilers have not been tested with hydraulic double working pressure, but only with single working pressure plus 72 lb as required by German law, please see my Report N. 1098 on T.S. Frankton and letter from Secretary dated 18.1. & 2.3.05 initialed E.

Under steam the boilers are tight and the Engines work well.

In my opinion these Engines and Boilers are eligible to be classed with notation of L.M.C. 11.05.

It is submitted that this vessel is eligible for THE RECORD L.M.C. 11.05 F.D. ELEC. LIGHT.

Ans
9.11.05
9.11.05

The amount of Entry Fee..	£ 3 :	When applied for,
Special	£ 46 : 13 :	6.11.1905
Donkey Boiler Fee	£ 2 : 2 :	When received
Travelling Expenses (if any)	£ 1 : 1 :	16.11.05

J. Thomson
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
Assigned
+ L.M.C. 11.05
F.D. Elec. light.
MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to *Surveyor Bremerhaven*