

REPORT ON MACHINERY.

Port of Hamburg

Received at London Office 19 MAR 1903

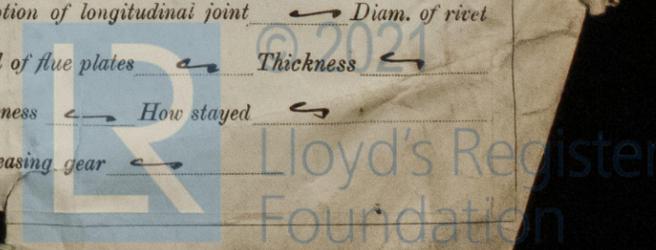
No. in Survey held at Stensburg Date, first Survey 24/6.02 Last Survey 14/3. 1903
 Reg. Book Suppl 13 on the Steel S. S. "Lichtenfels" (Number of Visits 23)
 Master Frerichs Built at Stensburg By whom built Stensburger Schiffsb. Ges. When built 1903
 Engines made at Stensburg By whom made Stensburger Schiffsb. Ges. when made 1903
 Boilers made at Stensburg By whom made Stensburger Schiffsb. Ges. when made 1903
 Registered Horse Power 511 Owners Deutsche Dampff. Ges. "Hansa" Port belonging to Bremen
 Nom. Horse Power as per Section 28 511 506 Is Refrigerating Machinery fitted no Is Electric Light fitted yes

Tons { Gross 5434
 Net 3700

ENGINES, &c.—Description of Engines Quadruple on 4 cranks surf. cond. No. of Cylinders 4 No. of Cranks 4
 Dia. of Cylinders 24" 34" 51" 74" Length of Stroke 54" Revs. per minute 65 Dia. of Screw shaft 16 1/2" as per rule 15 1/4" as fitted 16 1/2" Lgth. of stern bush 8 1/2"
 Dia. of Tunnel shaft 13 1/2" as per rule 14 1/2" as fitted 13 1/2" Dia. of Crank shaft journals 14 1/2" as per rule 14 1/2" as fitted 14 1/2" Dia. of Crank pin 14 1/2" Size of Crank webs 9 1/2" x 2 1/2" Dia. of thrust shaft under collars 14 1/2" Dia. of screw 19 1/2" Pitch of screw 20 1/2" No. of blades 4 State whether moceable yes Total surface 86 1/2 sq. ft.
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 28" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 28" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 3 Sizes of Pumps 1 ballast 14" x 24" dkl. act. 2 feed 6" x 12" dkl. act. 3 dupl. Blake 4" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4-2 off 3 1/2" 2 off 4" 3 in tunnel 3 1/2" In Holds, &c. 8-2 in each hold 3 1/2" each 17-4" each from tanks
 No. of bilge injections 1 sizes 7" Connected to condenser, or to circulating pump yes Is a separate donkey suction fitted in Engine room & size 2 off 4"
 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 none
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both 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 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 fore hold suction How are they protected by 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 Cylinder platform.

BOILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 6500 sq. ft. Is forced draft fitted yes
 No. and Description of Boilers 3 single ended cylinder multitubular Working Pressure 213 lbs Tested by hydraulic pressure to 426 lbs
 Date of test 11.2.03 Can each boiler be worked separately yes Area of fire grate in each boiler 48'4 sq" No. and Description of safety valves to each boiler 2 spring loaded Area of each valve 9'62 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 1'66" Mean dia. of boilers 14'0" Length 12'1" Material of shell plates Steel
 Thickness 1'5" Range of tensile strength 27'5/30 Are they welded or flanged no Descrip. of riveting: cir. seams lap & reb. riv. long. seams dbl. bk. quad. riv.
 Diameter of rivet holes in long. seams 1'5" Pitch of rivets 4'56" Lap of plates or width of butt straps 30'5"
 Per centages of strength of longitudinal joint rivets 106'6% plate 91'5% Working pressure of shell by rules 251'6 lbs Size of manhole in shell 15'75" x 11'7"
 Size of compensating ring 8" x 1'5" No. and Description of Furnaces in each boiler 3 Fox Pat. Material Steel Outside diameter 43'3"
 Length of plain part top 7" bottom 11" Thickness of plates crown 5'56" bottom 5'56" Description of longitudinal joint welded No. of strengthening rings no
 Working pressure of furnace by the rules 261'7 lbs Combustion chamber plates: Material Steel Thickness: Sides 6'2" Back 6'2" Top 6'2" Bottom 8"
 Pitch of stays to ditto: Sides 7'6" Back 7'8 1/2" Top 7'6 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 231 lbs
 Material of stays Steel Diameter at smallest part 1'6" Area supported by each stay 58'5 sq" Working pressure by rules 307'5 lbs End plates in steam space:
 Material Steel Thickness 1'14" Pitch of stays 15" How are stays secured dbl. nuts & wash. Working pressure by rules 304 lbs Material of stays Steel
 Diameter at smallest part 2'75" Area supported by each stay 22'5 sq" Working pressure by rules 263'5 lbs Material of Front plates at bottom Steel
 Thickness 8" Material of Lower back plate Steel Thickness 1'03" Greatest pitch of stays 13'6" Working pressure of plate by rules 244 lbs
 Diameter of tubes 2'5" Pitch of tubes 3'75" Material of tube plates Steel Thickness: Front 9'3" Back 8'9" Mean pitch of stays 7'5"
 Pitch across wide water spaces 13'6" Working pressures by rules 314 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 11'25" x 1'43" Length as per rule 33'87" Distance apart 7'5" Number and pitch of Stays in each 3 x 7'7"
 Working pressure by rules 269'5 lbs Superheater or Steam chest; how connected to boiler no Can the superheater be shut off and the boiler worked separately no
 Diameter no Length no Thickness of shell plates no Material no Description of longitudinal joint no Diam. of rivet holes no Pitch of rivets no Working pressure of shell by rules no Diameter of flue no Material of flue plates no Thickness no
 If stiffened with rings no Distance between rings no Working pressure by rules no End plates: Thickness no How stayed no
 Working pressure of end plates no Area of safety valves to super heater no Are they fitted with easing gear no

5010-161600-281600



DONKEY BOILER— No. 1 Description Single ended cylindrical multitubular
 Made at Flensburg By whom made Flensburger Schiffbau Ges. When made 1903 Where fixed stoke hold
 Working pressure 12 1/2 lbs tested by hydraulic pressure to 242 lbs No. of Certificate 41209 Description of safety valves spring loaded
 No. of safety valves 2 Area of each 8 2/3 sq ft Pressure to which they are adjusted 12 1/2 lbs If fitted with easing gear yes If steam from main boilers can enter the donkey boiler no Dia. of donkey boiler 12" Length 10" Material of shell plates Steel Thickness 8" Range of tensile strength 27/30 Descrip. of riveting long. seams all but the fore and aft Dia. of rivet holes 8 7/8" Whether punched or drilled drilled Pitch of rivets 3 1/4"
 Lap of plating 1 1/2" Per centage of strength of joint 83 3/4% Rivets 8 3/8" Thickness of shell crown plates 8 7/8" Radius of do. — No. of Stays to do. 14
 Dia. of stays 2 1/2" Diameter of furnace Top 35" Bottom — Length of furnace 80" Thickness of furnace plates 6" Description of joint welded Thickness of furnace crown plates 1 1/2" Stayed by airorders Working pressure of shell by rules 133 lbs
 Working pressure of furnace by rules 129 lbs Diameter of uptake — Thickness of uptake plates — dia. Thickness of water tubes 3 3/8"
14 crank shaft, 1 propeller shaft, 2 spare propeller blades, 2 connecting

SPARE GEAR. State the articles supplied:— rod top & bottom end bolts, with nuts, 2 main bearing bolts, 1 set coupling bolts, 1 set feed & bilge pump valves, 1 slide valve spindle, eccentric with strap complete, one pair connecting rod brasses, 1 set link bolts, 1 air pump rod, 1 set air pump valves, 1 circular ring pump rod, 6 cylinder cover bolts, 24 tubes for Main Boiler, 24 tubes for Donkey Boiler, 36 condenser tubes, 1 set safety valves springs for Main & Donkey Boiler, 1 set fire bars for Main & Donkey Boiler, a large number of bolts, nuts, studs & rivets & iron assorted.

The foregoing is a correct description,
Flensburger Schiffbau-Gesellschaft Manufacturer.
Blano

Dates of Survey while building
 During progress of work in shops: 24/11/02, 18/12/02, 19/1/03, 10/2/03, 17/2/03, 27/2/03, 4/3/03, 14/3/03, 4/4/03, 12/4/03, 15/4/03, 21/4/03, 14/5/03, 18/5/03.
 During erection on board vessel: 4/2/03, 11/2/03, 28/2/03, 5/3/03, 14/3/03.
 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. Material and workmanship of these Engines are of first class description and have been constructed under Special Survey, the outfit is complete.)

Material of screw shaft S. M. Steel 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 —
 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 — If two liners are fitted, is the shaft lapped or protected between the liners —

I attended a satisfactory trial trip on the 14th March 1903 when I tested the Safety valves of all the Boilers and found them correctly adjusted to 213 and 12 1/2 lbs. respectively.

The invoices of the Steel Boiler Materials, signed by the testing officers have been submitted to me.

The approved plans of the Boilers together with the plans as carried out, showing slight alterations in form of furnaces, distribution of side plating of centre combustion chamber of Main Boiler, and of position of shell bulwarks of Donkey Boiler, are forwarded herewith along with Forging Certificate of shafting.

These Engines being in my opinion in accordance with the Society's Rules, I hereby recommend that the Vessel be classed in the Society's Register Book and that *** L.M.C 3.03** be recorded.

It is submitted that this vessel is eligible for THE RECORD :- L.M.C 3.03 I.D. U.C. Right.

The amount of Entry Fee.	£ 3. 0. 0	When applied for,
Special	£ 45. 11. 0	14/3/03
Donkey Boiler Fee	£ 2. 2. 0	When received,
Travelling Expenses (if any)	£ 13. 15. 0	17/3/03

W. Sweeney
 Engineer-Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned
 FRI. 20 MAR 1903
 + L.M.C 3.03 7D



Certificate (if required) to be sent to Hamburg Office.

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

MACHINERY CERTIFICATE WRITTEN