

REPORT ON MACHINERY

Received at London Office

JUL 21 1910

Date of writing Report 16th July 1910 When handed in at Local Office 19 Port of Bremerhaven
 No. in Survey held at Leestemünde Date, First Survey 4th January Last Survey 16th July 1910
 Reg. Book. Leestemünde (Number of Visits 19)
 on the steel screw steamer Birkenfels Tons { Gross 5698.6
 Net 3545.6
 Master Frichs Built at Leestemünde By whom built Joh. C. Tschubert & Co. When built 1910
 Engines made at Leestemünde By whom made Joh. C. Tschubert & Co. when made 1910
 Boilers made at Leestemünde By whom made Joh. C. Tschubert & Co. when made 1910
 Registered Horse Power 517 Owners D. D. Gu. Hansa Port belonging to Bremen
 Nom. Horse Power as per Section 28 517 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Two quadr. comp. w/ condensing No. of Cylinders 4 No. of Cranks 4
 Dia. of Cylinders 24 1/2 / 24 1/2 / 20 1/2 / 24 1/2 Length of Stroke 53 1/2 Revs. per minute 75 Dia. of Screw shaft 16 3/8 Material of screw shaft St. steel
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No Is the after end of the liner made water tight in the propeller boss —
 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 — Length of stern bush 10' 1 1/2"
 Dia. of Tunnel shaft 13 3/4 Dia. of Crank shaft journals 14 1/4 Dia. of Crank pin 14 1/2 Size of Crank webs 9 1/2 Dia. of thrust shaft under collars 14 1/2 Dia. of screw 228 1/2 Pitch of Screw 240 1/2 No. of Blades 4 State whether moveable Yes Total surface 109.98
 No. of Feed pumps 2 Diameter of ditto 3 3/4 Stroke 28 1/2 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 27 1/2 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 3 Sizes of Pumps 13 1/2 x 15 1/2 / 9 1/2 x 5 1/2 / 14 x 4 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 4 in S.P. room 3 1/2 diam. In Holds, &c. 2 in each hold 3 1/2 diam / in tunnel 3 1/2 diam.
 No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump Directly Is a separate Donkey Suction fitted in Engine room & size Yes 3 1/2 diam
 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 both
 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 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
 Dates of examination of completion of fitting of Sea Connections 6th July of Stern Tube 7th July Screw shaft and Propeller 7th July
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Engine room platform above deck

BOILERS, &c.—(Letter for record in) Manufacturers of Steel Friedr. Krupp & Rheinische Stahlwerke
 Total Heating Surface of Boilers 6780 Is Forced Draft fitted Yes No. and Description of Boilers 3 cylindrical smooth shell steel
 Working Pressure 213 lb Tested by hydraulic pressure to 285 lb Date of test 30.5.10 No. of Certificate 120/121/122
 Can each boiler be worked separately Yes Area of fire grate in each boiler 59.8 No. and Description of Safety Valves to each boiler 2 spring valves Area of each valve 12.18 Pressure to which they are adjusted 213 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 12' 7 1/2" Material of shell plates St. steel
 Thickness 1 3/4" Range of tensile strength 27.9-31.7 lb Are the shell plates welded or flanged flanged Descrip. of riveting: cir. seams double
 long. seams both Diameter of rivet holes in long. seams 2 3/4" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 2 1/4"
 Per centages of strength of longitudinal joint rivets 84.6% Working pressure of shell by rules 224 lb Size of manhole in shell 11 1/2 x 15 1/2"
 Size of compensating ring 9 1/2 x 13 1/2" No. and Description of Furnaces in each boiler 3 Morrison Material St. steel Outside diameter 40 3/4"
 Length of plain part 7 1/2" Thickness of plates 4 1/4" Description of longitudinal joint welded No. of strengthening rings —
 Working pressure of furnace by the rules 260 lb Combustion chamber plates: Material St. steel Thickness: Sides 4 3/4" Back 4 3/4" Top 4 3/4" Bottom 5 1/4"
 Pitch of stays to ditto: Sides 2 1/2 x 16" Back 6 3/8 x 14" Top 7 1/8 x 16" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 272 lb
 Material of stays Iron Diameter at smallest part 1 9/16" Area supported by each stay 48.9 Working pressure by rules 238 lb End plates in steam space: Material St. steel Thickness 1 3/4" Pitch of stays 14 1/2 x 14 1/2" How are stays secured nuts Working pressure by rules 250 lb Material of stays St. steel
 Diameter at smallest part 2 1/8" Area supported by each stay 206 Working pressure by rules 298 lb Material of Front plates at bottom St. steel
 Thickness 1 3/4" Material of Lower back plate St. steel Thickness 6 3/4" Greatest pitch of stays 6 3/8" Working pressure of plate by rules 224 lb
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates St. steel Thickness: Front 1 3/4" Back 5 1/4" Mean pitch of stays 7 1/2"
 Pitch across wide water spaces 13 3/8" Working pressures by rules 233 lb Girders to Chamber tops: Material St. steel Depth and thickness of girder at centre 10 1/4 x 1 1/2" Length as per rule 36 1/4" Distance apart 6 3/8" Number and pitch of stays in each 3 x 7 3/8"
 Working pressure by rules 259 lb 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 —

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

43716 on plan



VERTICAL DONKEY BOILER— Manufacturers of Steel

Table with columns: 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, Description of Safety, Valves, No. of Safety Valves, Area of each, Pressure to which they are adjusted, Date of adjustment, If fitted with casing 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, Rivets, Plates, 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 / 1 crank pin brass / 1 connecting rod / 2 crosshead bolts / 2 crank pin bolts / 2 nuts / 2 slide valve spindle / 1 set of coupling bolts / 1 piston rod for air pump / 1 set of valves for air pump / 1 fan with shaft / 1 brass with nuts for each side / 1 slide valve spindle for centrifugal pump / 1 set of feet and legs / 1 set of pump valves / 1 set of links / 2 1/2 of condenser tubes with stuffing boxes / 2 1/2 of boiler tubes for all boilers / 1 safety valve spring for each boiler / 6 set of gauge glasses / 10 1/2 of cylinder and slide valve cover bolts / 10 1/2 of piston bolts / 1 complete eccentric strap / 6 set of piston rings for each piston / 1 set of fire bars / nuts / bolts / washers and iron of different sizes / 2 complete sets of firing tools

The foregoing is a correct description, JOH. C. TECKLEBURG A.-G. Schiffswerft und Maschinenfabrik. Manufacturer.

Table with columns: Dates of Survey while building, During progress of work in shops, During erection on board vessel, Total No. of visits, Is the approved plan of main boiler forwarded herewith, Has been forwarded with Report No. 1572 on S.S. Cleopatra, "donkey"

Table with columns: Dates of Examination of principal parts, Cylinders, Slides, Covers, Pistons, Rods, Connecting rods, Crank shaft, Thrust shaft, Tunnel shafts, Screw shaft, Propeller, Stern tube, Steam pipes tested, Engine and boiler seatings, Engines holding down bolts, Completion of pumping arrangements, Boilers fixed, Engines tried under steam, Main boiler safety valves adjusted, Thickness of adjusting washers, Material of Crank shaft, Identification Mark on Do., Material of Thrust shaft, Identification Mark on Do., Material of Tunnel shafts, Identification Marks on Do., Material of Screw shafts, Identification Marks on Do., Material of Steam Pipes, Test pressure

General Remarks (State quality of workmanship, opinions as to class, &c. These Engines and Boilers are of the same dimensions as those fitted in the S.S. Cleopatra, please see my Report No. 1572. The approved tracings of the boilers have also been forwarded with that Report and are still in London.

They have been built under special Survey of very good material, manufactured at approved works and tested as per rule.

All castings are of good close grained material, cylinders, slide valve casings, and all other hollow vessels have been tested by hydraulic and found quite tight.

Steam pipes and all pipes, working under pressure have been tested by 4.26 ap and found quite tight

The boilers have been constructed in accordance with the approved tracings, tested by hydraulic up to 2.85 ap as per German law, found quite tight showing no alteration of form, under steam they are also tight and the safety valves lift freely at 2.13 ap

In my opinion these Engines and Boilers are therefore eligible to be classed and to have record of Survey 7.10 with notation of L.M.C. 7.10

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 7.10 F.D. J. Thomson. Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Table with columns: The amount of Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses (if any), When applied for, When received

Committee's Minute Assigned FRI 22 JUL 1910

certificates (if required) to be sent to Surveyors Bremen

No. in Su Reg. Book. on the Master Engines made Boilers made Registered Ho MULTITU (Letter for re Boilers No. of Certificate safety valves Are they fitted Smallest dista Material of sh Descrip. of ri Lap of plates rules boiler Description of plates: Mater Top smallest part Pitch of stuy Area supporte Lower back p Pitch of tubes water spaces girder at cent Working pres separately holes If stiffened wi Working pres VERTICA Made at tested by hydr No. of safety e enter the donk strength Lap of platin Radius of do. Thickness of plates Thickness of Dates of Survey while building

