

## REPORT ON MACHINERY.

No. 26116.

THU. MAY 21. 1914

Date of writing Report

19

When handed in at Local Office

20. 5. 1914. Port of Sunderland.

No. in Survey held at Sunderland.

Date, First Survey 7 January Last Survey May 1914

Reg. Book.

(Number of Visits 32. 13. 4276

on the Steel Screw Steamer Boden

Master Lindqvist Built at Sunderland By whom built J. L. Thompson &amp; Sons Ltd

Tons Gross 4276

Engines made at Sunderland. By whom made J. Dickinson &amp; Sons Ltd

when made 1914

Boilers made at " By whom made " when made 1914

Registered Horse Power

Owners Red. Akt. Lulea of Sweden

Port belonging to Stockholm

Nom. Horse Power as per Section 28 449

Is Refrigerating Machinery fitted for cargo purposes no.

Is Electric Light fitted yes

## ENGINES, &amp;c.—Description of Engines

No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 26 1/2. 43. 72 Length of Stroke 48 Revs. per minute 70

Dia. of Screw shaft as per rule 14 1/4 Material of screw shaft 45

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

Length of stern bush 5 feet

Dia. of Tunnel shaft as per rule 13 1/2 Dia. of Crank shaft journals as per rule 13 1/8

Dia. of Crank pin 13 1/8 Size of Crank webs patent Dia. of thrust shaft under

collars 13 1/8 Dia. of screw 1 1/4 Pitch of Screw 16 9/16 No. of Blades 4 State whether moveable no. Total surface 99 sq ft

No. of Feed pumps 2 Diameter of ditto 4 Stroke 25 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 25 1/2 Can one be overhauled while the other is at work yes

No. of Donkey Engines four Sizes of Pumps 4 1/2 10 x 10 10 x 10 10 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room four of 3 1/2 In Holds, &amp;c. two 3 1/2 in each hold.

Tunnel well 2 1/2

No. of Bilge Injection pumps one sizes 5 1/2 Connected to condenser, or to circulating pump CP Is a separate Donkey Suction fitted in Engine room &amp; size yes 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

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 none How are they protected

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 6. 3. 14 of Stern Tube 16. 3. 14 Screw shaft and Propeller 17. 3. 14

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform

OILERS, &amp;c.—(Letter for record 8.) Manufacturers of Steel Blechwalzwerk Schulz, Kraut.

Total Heating Surface of Boilers 7131 sq ft Is Forced Draft fitted no. No. and Description of Boilers 3 Multitubular

Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 7. 4. 14 No. of Certificate 3205

Can each boiler be worked separately yes Area of fire grate in each boiler 65 sq ft No. and Description of Safety Valves to

each boiler two Spring Area of each valve 8. 3 Pressure to which they are adjusted 185 Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 in Mean dia. of boilers 16 1/2 Length 11. 6 Material of shell plates B

Thickness 1. 32 Range of tensile strength 28- 32 Are the shell plates welded or flanged no. Descrip. of riveting: cir. seams B

Long. seams B. R. 10 Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 9/8 Lap of plates or width of butt straps 19 1/8

Per centages of strength of longitudinal joint rivets 94. 30 plate 84. 93 Working pressure of shell by rules 182 lbs Size of manhole in shell 16 x 12

Size of compensating ring 8 3/4 x 13 1/2 No. and Description of Furnaces in each boiler 3 Daigton's Material B Outside diameter 4. 2

Length of plain part top 9 bottom 9 Thickness of plates crown 9 1/2 Description of longitudinal joint weld No. of strengthening rings

Working pressure of furnace by the rules 189 Combustion chamber plates: Material B Thickness: Sides 16 Back 16 Top 16 Bottom 16 1/2

Pitch of stays to ditto: Sides 10 1/2 x 8 1/4 Back 10 1/4 x 8 Top 9 1/2 x 9 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181

Material of stays B Diameter at smallest part 1. 60 Area supported by each stay 99 Working pressure by rules 185 End plates in steam space:

Material S Thickness 1 3/16 Pitch of stays 18 x 20 How are stays secured A nuts Working pressure by rules 180 Material of stays B

Diameter at smallest part 2. 92 Area supported by each stay 360 Working pressure by rules 194 Material of Front plates at bottom B

Thickness 3/8 Material of Lower back plate S Thickness 3 1/2 Greatest pitch of stays 14 x 8 Working pressure of plate by rules 189

Diameter of tubes 3 1/2 Pitch of tubes 4 1/2 Material of tube plates B Thickness: Front 8 Back 8 Mean pitch of stays 9

Pitch across wide water spaces 14 1/2 Working pressures by rules 249 Girders to Chamber tops: Material B Depth and

Thickness of girder at centre 4 x 2 1/2 Length as per rule 32 Distance apart 9 Number and pitch of stays in each 2 @ 9 1/2

Working pressure by rules 181 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

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

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



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 \_\_\_\_\_ Description of Safety \_\_\_\_\_  
 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 \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_  
 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:— Propeller propeller shaft, set of coupling bolts, two main bearing bolts & nuts, two holding down bolts & nuts, two top & bottom end bolts & nuts, feed & bilge pump valves, a set of each, 3 feed and bilge pump valve seats, two main & donkey check valves, set of air & air pump valves, set of ball pump valves, set of HP & MP piston rings, boiler tubes, assorted iron nuts & bolts

The foregoing is a correct description,

John Dickson & Sons, Limited.

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1914 Jan 7, 9, 14, 20, 21. Feb 16, 24, 26, 27 Mar. 2, 3, 6, 10, 14, 16, 17, 18, 19, 24, 26, 31  
 During erection on board vessel -- Apr. 15, 16, 21, 23, 24, 27, 29 May 2, 5, 10, 13.  
 Total No. of visits (32) Is the approved plan of main boiler forwarded herewith **yes**

Dates of Examination of principal parts—Cylinders 24. 2. 14 Slides 20. 1. 14 Covers 20. 1. 14 Pistons 16. 2. 14 Rods 20. 1. 14  
 Connecting rods 16. 2. 14 Crank shaft 2. 3. 14 Thrust shaft 2. 3. 14 Tunnel shafts 2. 3. 14 Screw shaft 14. 3. 14 Propeller 14. 3. 14  
 Stern tube 14. 3. 14 Steam pipes tested 21. 4. 14 Engine and boiler seatings 6. 3. 14 Engines holding down bolts 16. 4. 14  
 Completion of pumping arrangements 2. 5. 14 Boilers fixed 23. 4. 14 Engines tried under steam 2. 5. 14  
 Main boiler safety valves adjusted 2. 5. 14 Thickness of adjusting washers PB  $\frac{1}{2}$  a  $\frac{1}{2}$  CB  $\frac{1}{2}$  S  $\frac{1}{2}$  SB  $\frac{1}{2}$  a  $\frac{1}{2}$   
 Material of Crank shaft S Identification Mark on Do. B.T.T.F. Material of Thrust shaft S Identification Mark on Do. B.T.T.F.  
 Material of Tunnel shafts S Identification Marks on Do. B.T.T.F. Material of Screw shafts S Identification Marks on Do. B.T.T.F.  
 Material of Steam Pipes Copper Test pressure 400 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c. Engines & boilers built under survey materials and workmanship good. Engines and boilers examined under full steam & working condition & found satisfactory. It is submitted to the Committee that this vessel is eligible for the record in the Register book of. F.L.M.C 5/1914

Vessel fitted with 'Wireless' installation. J.Y.F.

It is submitted that this vessel is eligible for THE RECORD. + LMC 5. 14.

The amount of Entry Fee .. £ 3 : : When applied for, Special .. £ 37. 9 : : When received, Donkey Boiler Fee .. £ : : Travelling Expenses (if any) £ : : 21/5/14

Committee's Minute

Assigned

FRI. MAY. 22. 1914

+ L.M.C. 5. 14

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



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