

REPORT ON MACHINERY.

THU. MAY 21. 1914

Received at London Office

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 10th 1914
Reg. Book. (Number of Visits 32)

on the Steel Screw Steamer Boden Tons Gross 4276 Net 2128
Master Lindqvist Built at Sunderland By whom built J. L. Thompson & Sons Ltd When built 1914

Engines made at Sunderland By whom made J. Dickinson & 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, &c.—Description of Engines

Dia. of Cylinders 26 1/2, 43, 72 Length of Stroke 48 Revs. per minute 40 No. of Cylinders 3 No. of Cranks 3
Dia. of Screw shaft as per rule 14 1/4 Material of screw shaft 45
as fitted 14 3/4

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 5/8 Dia. of Crank pin 13 5/8 Size of Crank webs patent Dia. of thrust shaft under collars 13 5/8 Dia. of screw 17 9/16 Pitch of Screw 16 9/16 No. of Blades 4 State whether moceable 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 10 x 10, 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, &c. two 3 1/2 in each hold.

No. of Bilge Injections one sizes 5 1/2 Connected to condenser, or to circulating pump CP Is a separate Donkey Suction fitted in Engine room & 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 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 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, &c.—(Letter for record 3.)

Manufacturers of Steel Blechwalzwerk Schulz, Kraut

Total Heating Surface of Boilers 1131 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 Mean dia. of boilers 16 9/16 Length 11-6 Material of shell plates B

Thickness 1 3/32 Range of tensile strength 28-32 Are the shell plates welded or flanged no. Descrip. of riveting: cir. seams DRD

long. seams R. B Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 9/8 Lap of plates or width of butt straps 19 1/2

Per centages of strength of longitudinal joint rivets 94-95 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 1 3/32 No. and Description of Furnaces in each boiler 3 Dayltons Material B Outside diameter 4-2

Length of plain part top 9 bottom 9 Thickness of plates crown 9 3/32 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 1/8

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: 76

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 3/32 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

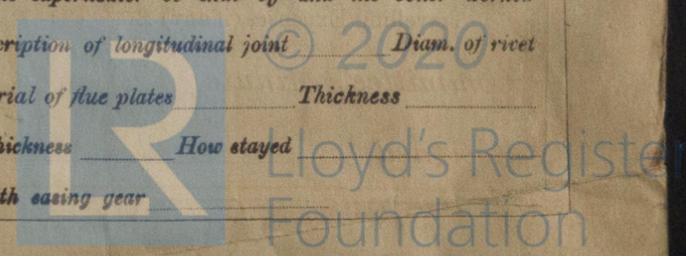
Working pressure by rules 181 Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

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

W455-0089



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 casing gear	If steam from main boilers can enter the donkey boiler	Dia. of donkey boiler		Length	
Material of shell plates	Thickness	Flange 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, lead & bilge pump valves, a set of each, 3 feet 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,
 J. J. 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**
 " " " donkey " " " **None.**

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
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 1 1/2 a 3/32 CB 1 3/32 S 3/8 SB 1 7/8 a 13/32						
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 records in the Register book of F.L.M.C 5/1914

Vessel fitted with "Wireless" installation. J.J.F.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C 5. 14.

J.W.D. 5/15/14

The amount of Entry Fee .. £	3	When applied for,
Special £	37. 9	1914
Donkey Boiler Fee £	:	When received,
Travelling Expenses (if any) £	:	21/5/14

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

Committee's Minute
 Assigned + L.M.C 5. 14

MACHINERY CERTIFICATE WRITTEN



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Certificate (if required) to be sent to

(The Surveyor is requested not to write on or below the space for Committee's Minute.)