

REPORT ON MACHINERY.

No. 5383

MON. 24 FEB 1908

Port of MIDDLESBROUGH-ON-TEES

Received at London Office

19

No. in Survey held at Stockton & Middlesbrough Date, first Survey Oct 31st 1904 Last Survey Feb 20th 1908

Reg. Book. 40 on the Steel S.S. "Dacre Castle"

(Number of Visits 35)

Tons { Gross 4261.46
Net 2665.12
When built 1908

Master B.V. Smith Built at Middlesbrough By whom built R. L. Cragg & Sons Ltd

Engines made at Stockton By whom made Polain & Co Ltd when made 1908

Boilers made at Stockton By whom made Polain & Co Ltd when made 1908

Registered Horse Power 459 Owners J. Chambers & Co Port belonging to Liverpool

Nom. Horse Power as per Section 28 459 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Direct acting Trip expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 26 1/2 - 44 - 72 Length of Stroke 48 Revs. per minute 56 Dia. of Screw shaft 14 1/2 as per rule 14 1/2 Material of W.S. 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 — 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 — Length of stern bush 5-6

Dia. of Tunnel shaft 13 1/2 as per rule 13 1/2 Dia. of Crank shaft journals 13 1/2 as per rule 13 1/2 Dia. of Crank pin 15 Size of Crank webs 24 1/2 x 4 1/2 Dia. of thrust shaft under

collars 15 Dia. of screw 18-6 Pitch of Screw 18-6 No. of Blades 4 State whether moveable Yes Total surface 94 sq ft

No. of Feed pumps 2 Diameter of ditto 3 1/2 Stroke 34 Can one be overhauled while the other is at work Yes No Poline

No. of Bilge pumps 2 Diameter of ditto 5 Stroke 34 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps Feed 4 1/2 x 10 Ball 9 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 3 1/2 diam In Holds, &c. Two each hold 3 1/2 diam

No. of Bilge Injections 1 sizes 6 3/4 Connected to condenser, or to circulating pump C.P. 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 —

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 to fore hold 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 19-12-07 of Stern Tube 16-12-07 Screw shaft and Propeller 28-1-08

Is the Screw Shaft Tunnel watertight see ship report Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel John Spencer & Sons Ltd

Total Heating Surface of Boilers 6419 sq ft Is Forced Draft fitted Yes No. and Description of Boilers Two cylindrical tubular

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 7-1-08 No. of Certificate 4076

Can each boiler be worked separately Yes Area of fire grate in each boiler 66 sq ft No. and Description of Safety Valves to

each boiler Two spring Area of each valve 15.9 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork See dia. of boilers 16-7 1/2 Length 12-0 Material of shell plates Steel

Thickness 1 1/2 Range of tensile strength 28/32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 28 Riv.

long. seams 2 Riv. Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets One row 9 7/8 Lap of plates or width of butt straps 1-9 3/4

Per centages of strength of longitudinal joint 88.7 Working pressure of shell by rules 207 lbs Size of manhole in shell 17 x 13

Size of compensating ring 31 x 27 x 1 1/2 No. and Description of Furnaces in each boiler 3 Monitors Material Steel Outside diameter 4-4

Length of plain part top 7-5 1/2 Thickness of plates bottom 1 1/2 Description of longitudinal joint Welded No. of strengthening rings —

Working pressure of furnace by the rules 217 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 15/16

Pitch of stays to ditto: Sides 7 7/8 x 7 7/8 Back 7 7/8 x 7 7/8 Top 7 7/8 x 7 7/8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 217 lbs

Material of stays Steel Diameter at smallest part 1 7/16 Area supported by each stay 62 sq in Working pressure by rules 209 lbs End plates in steam space:

Material Steel Thickness 1 3/8 Pitch of stays 22 1/2 x 19 3/4 How are stays secured 22 x 10 Working pressure by rules 199 lbs Material of stays Steel

Diameter at smallest part 3 1/2 Area supported by each stay 444.3 sq in Working pressure by rules 225 lbs Material of Front plates at bottom Steel

Thickness 1 1/2 Material of Lower back plate Steel Thickness 1 1/8 Greatest pitch of stays 17 3/4 x 7 3/4 Working pressure of plate by rules 235 lbs

Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates Steel Thickness: Front 1 1/2 Back 1 3/4 Mean pitch of stays 9 7/8

Pitch across wide water spaces 12 1/2 Working pressures by rules 261 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 8 x 2 Length as per rule 33 1/2 Distance apart 7 7/8 Number and pitch of stays in each Three 7 7/8

Working pressure by rules 201 lbs 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 —

W959-0069

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Lloyd's Register Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

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	Stayed by			
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey		

SPARE GEAR. State the articles supplied:— *Top and bottom end connecting rod bolts & nuts. Set of coupling bolts. Two main bearing bolts. Set of feed and bilge pump valves. Main and donkey feed check valves. N & M piston rings & piston pins. Propeller shaft. 2 spare propeller blades. Bolts & nuts.*

The foregoing is a correct description,
FOR BLAIR & CO., LIMITED.

Georrettushup Manufacturer. *of main engine & boiler.*
 Assistant Secretary. 1904 Oct. 31. Nov. 26. 28. Dec. 4. 6. 11. 16. 17. 18. 19. 20. 24. 30. 1908 Jan. 6. 7. 14. 19
 Dates of Survey while building: During progress of work in shops - - - Jan. 20. 23. 28. 31. Feb. 3. 4. 5. 6. 10. 11. 13. 13. 14. 17. 18. 19. 20.
 Total No. of visits 35

Is the approved plan of main boiler forwarded herewith *No* *Blair*
 " " " donkey " " " *yes*
 Dates of Examination of principal parts—Cylinders 28-11-07 Slides 20-12-07 Covers 11-12-07 Pistons 18-12-07 Rods 17-12-07
 Connecting rods 11-12-07 Crank shaft 20-1-08 Thrust shaft 20-12-07 Tunnel shafts 11-12-07 Screw shaft 17-1-08 Propeller 24-1-08
 Stern tube 4-12-07 Steam pipes tested 3-2-08 Engine and boiler seatings 15-12-07 Engines holding down bolts 16-2-08
 Completion of pumping arrangements 11-2-08 Boilers fixed 10-2-08 Engines tried under steam 11-2-08
 Main boiler safety valves adjusted 11-2-08 Thickness of adjusting washers *5 1/2 x 3/8" or 7/32" 1 3/4 x 5/16" or 1 1/4 x 3/2"*
 Material of Crank shaft *Steel* Identification Mark on Do. *6404* Material of Thrust shaft *Steel* Identification Mark on Do. *6377*
 Material of Tunnel shafts *Steel* Identification Marks on Do. *6372* Material of Screw shafts *W. 9* Identification Marks on Do. *6402*
 Material of Steam Pipes *Copper solid drawn* Test pressure *400 lb* *8 p.m. 8th Feb 1908*

General Remarks (State quality of workmanship, opinions as to class, &c.)
*The machinery and boilers of this vessel have been constructed under special survey, the materials and workmanship are good and efficient, and when tested under steam were found satisfactory, and in my opinion now eligible for the notation *L.M.C. 2-08* in the Register Book.*

It is submitted that
 this vessel is eligible for
 THE RECORD. *L.M.C. 2-08.*
 ELEC. LIGHT.
 F.H.

24-2-08
24-2-08

The amount of Entry Fee.. £ 3 : : :
 Special .. £ 42. 19 : : :
 Donkey Boiler Fee .. £ : : :
 Travelling Expenses (if any) £ : : :
 When applied for, 22.2.1908
 When received, 27.2.1908

Geo. A. Wilson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned
 TUES. 25 FEB 1908
 + *L.M.C. 2-08*
 F.D. Elec. Light.
 MACHINERY CERTIFICATE
 WRITTEN.