

# REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES

Received at London on WED. 24 APL 1907

No. in Survey held at Middlesbrough Date, first Survey 8<sup>th</sup> Febry or Last Survey 23<sup>rd</sup> April 1907

Reg. Book. S. S. "Period" (Number of Visits 2)

Master A. L. Leslie Built at Middlesbrough By whom built Sir R. Dixon & Co. Ltd. Tons { Gross 2785.48 Net 1747.17

Engines made at Middlesbrough By whom made Richardsons Westgarth & Co. Ltd. when made 1907

Boilers made at ditto By whom made ditto when made 1907

Registered Horse Power 307 Owners Howard Smith Co. Ltd. Port belonging to Melbourne

Nom. Horse Power as per Section 28 307 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

**ENGINES, &c.**—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 24-40-66 Length of Stroke 42 Revs. per minute 13.22 Dia. of Screw shaft 14 3/4 Material of Screw shaft Iron

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 <sup>not</sup> 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 5-0 1/2

Dia. of Tunnel shaft 11.84 as per rule 11.84 as fitted 11 3/4 Dia. of Crank shaft journals 12.44 as per rule 12 1/2 as fitted 12 1/2 Dia. of Crank pin 12 1/2 Size of Crank webs 8x19 Dia. of thrust shaft under collars 12 1/2 Dia. of screw 16-0 Pitch of Screw 16-3 No. of Blades 4 State whether moveable no Total surface 80 1/2

No. of Feed pumps 2 Diameter of ditto 3 1/4 Stroke 25 1/2 Can one be overhauled while the other is at work yes

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

No. of Donkey Engines 3 duplex Sizes of Pumps Feed 7x4 1/2 x 8, Bell 8x8x8 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Four of 3" In Holds, &c. Two of 3" in holds nos 1, 2 & 3.

No. of Bilge Injections 1 sizes 6 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 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 19-2-07 of Stern Tube 15-3-07 Screw shaft and Propeller 22-3-07

Is the Screw Shaft Tunnel watertight see ship reports it fitted with a watertight door yes worked from ✓

**BOILERS, &c.**—(Letter for record (S)) Manufacturers of Steel Messrs Clydebridge Steel Co. Ltd.

Total Heating Surface of Boilers 4761 1/2 Is Forced Draft fitted no No. and Description of Boilers Three, single ended.

Working Pressure 180 lb. Tested by hydraulic pressure to 360 lb. Date of test 27-2-07 No. of Certificate 3877

Can each boiler be worked separately yes Area of fire grate in each boiler 44 1/2 No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 5.94 Pressure to which they are adjusted 185 lb. Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 1-9 Mean dia. of boilers 13-6 Length 10-6 Material of shell plates Steel

Thickness 1 7/8 Range of tensile strength 29/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.P.L. long. seams J.R. D.B.S. Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 4" 2 row Top of plates or width of butt straps 1-5

Per centages of strength of longitudinal joint rivets 85.3 Working pressure of shell by rules 188 Size of manhole in shell 12"x16"

Size of compensating ring 8 1/2 x 1 5/8 No. and Description of Furnaces in each boiler 2 Morrison bell Material Steel Outside diameter 4-4

Length of plain part top ✓ bottom ✓ Thickness of plates crown 5 1/8 Description of longitudinal joint welded No. of strengthening rings ✓

Working pressure of furnace by the rules 193 Combustion chamber plates: Material Steel Thickness: Sides 1/6 Back 1/6 Top 1/6 Bottom 1/6

Pitch of stays to ditto: Sides 8 1/2 x 10 Back 8 1/2 x 10 Top 7 x 11 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 188

Material of stays J & S. Diameter at smallest part 2.42 Area supported by each stay 108.75 Working pressure by rules 200 End plates in steam space: Material Steel Thickness 1 3/16 Pitch of stays 19 x 20 How are stays secured Dr + w. Working pressure by rules 175 Material of stays Steel

Area at smallest part 7.06 Area supported by each stay 330 Working pressure by rules 214 Material of Front plates at bottom Steel

Thickness 1 1/8 Material of Lower back plate Steel Thickness 29/32 Greatest pitch of stays 16 x 8 1/2 Working pressure of plate by rules 180

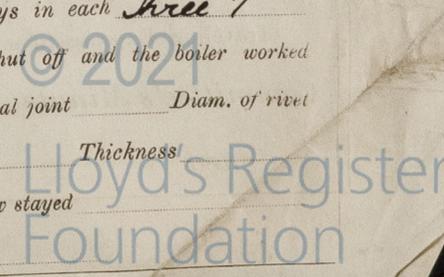
Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 3/4 Material of tube plates Steel Thickness: Front 1" Back 7/8" Mean pitch of stays 11 7/8"

Pitch across wide water spaces 14 1/2 Working pressures by rules 182 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 1/2 x 1 3/4 Length as per rule 2-6 Distance apart 11" Number and pitch of stays in each Three 7"

Working pressure by rules 206 Superheater or Steam chest; how connected to boiler none 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

411-91100-891100



**VERTICAL DONKEY BOILER—**

Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made *None.*  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Values \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety Valves \_\_\_\_\_  
 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:— *2 bolts & nuts for piston rods, Connecting rods and main bearings, 1 set coupling bolts & nuts, 1 set valves for air, circulating, feed bilge & feed & ballast donkey pumps 2 feed check valves 12 piston bolts, set of I.P. piston rings 2 eccentrics & straps, 2 safety valve springs, tail shaft, propeller, studs bolts & nuts.*  
 The foregoing is a correct description,  
 For RICHARDSONS, WESTGARTH & Co. Ltd.  
 Manufacturer. *J. Matonby.*

Dates of Survey while building	During progress of work in shops - -	1907. Feb 8. 9. 19. 21. 25. 26. 27. 28.	Mar 12. 13.
	During erection on board vessel - -	15. 18. 22. 25. 26. 27. 28.	April 11. 16. 18. 22. 23.
	Total No. of visits	22	

Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*

Dates of Examination of principal parts—Cylinders	24-3-07	Slides	27-3-07	Covers	27-3-07	Pistons	27-3-07	Rods	28-3-07
Connecting rods	28-3-07	Crank shaft	18-4-07	Thrust shaft	9-2-07	Tunnel shafts	9-2-07	Screw shaft	21-2-07
Stern tube	21-2-07	Steam pipes tested	22-3-07	Engine and boiler seatings	27-2-07	Engines holding down bolts	25-3-07	Propeller	22-3-07
Completion of pumping arrangements	23-4-07	Boilers fixed	25-3-07	Engines tried under steam	26-3-07				
Main boiler safety valves adjusted	26-3-07	Thickness of adjusting washers	P 9/32 S 7/32	Centre	9"	S	11/32	Starbd.	11/32 S 3/8
Material of Crank shaft	<i>Ingot Steel</i>	Identification Mark on Do.	✓	Material of Thrust shaft	<i>Ingot Steel</i>	Identification Mark on Do.	✓		
Material of Tunnel shafts	<i>Ingot Steel</i>	Identification Marks on Do.	✓	Material of Screw shafts	<i>Lockfast Iron.</i>	Identification Marks on Do.	✓		
Material of Steam Pipes	<i>Solid drawn Copper</i>	Test pressure	360 lbs.						

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *This vessel's machinery was not surveyed during construction in the shop, but has been examined in every part as far as possible while fitting on board. The boilers have been examined inside and outside and on measurement found to agree with the approved plan. They were then tested to twice the working pressure. The boiler materials and shafting have been tested by British Corporation surveyors. The workmanship is good. After fitting and securing on board the machinery has been tried under full steam satisfactorily, and is now in our opinion eligible to have the notation L.M.C.4.07. as per Secretary's letter of 24<sup>th</sup> January 1907.*

It is submitted that this vessel is eligible for THE RECORD L.M.C.4.07

*J.P.M. 24/4/07*

The amount of Entry Fee..	£ 3 : 0 : 0	When applied for,	13. 4. 1907
Special .. .. .	£ 35 : 4 : 0	When received,	16. 4. 1907
Donkey Boiler Fee .. .. .	£ : : :		
Travelling Expenses (if any) £	: : :		

*R.D. Philston & C. J. Anderson*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. APR 26 1907**

Assigned

