

## REPORT ON MACHINERY.

No. 12538

Port of WEST HARTLEPOOL

Received at London Office

MUN. 16 JAN 1905

No. in Survey held at Hartlepool Date, first Survey 13th June 04 Last Survey 4th Jan. 1905  
 Reg. Book. 35 Sup. on the Steel S.S. "Germanic" (Number of Visits 85)  
 Master Ireland Built at West Hartlepool By whom built Irvine's S.B. & D. Co. Ltd. Gross 3374  
 Engines made at Hartlepool By whom made Richardsons, Westgarth & Co. Net 2141 When built 1905  
 Boilers made at Hartlepool By whom made do when made 1905  
 Registered Horse Power 312 Owners H.A. Lockettline & Co. Port belonging to Hull  
 Nom. Horse Power as per Section 28 312 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders three No. of Cranks three  
 Dia. of Cylinders 23½ - 39 - 66 Length of Stroke 45 Revs. per minute 60 Dia. of Screw shaft as per rule 14½ Material of Scrap Iron  
 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 Yes If the liner is in more than one length are the joints burned no 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 no Length of stern bush 4-9½  
 Dia. of Tunnel shaft as per rule 11-96 Dia. of Crank shaft journals as per rule 12½ Dia. of Crank pin 13 Size of Crank webs 25x8 Dia. of thrust shaft under  
 collars 13 Dia. of screw 16-9 Pitch of screw 16-6 No. of blades 4 State whether moveable no Total surface 84.6 sq ft  
 No. of Feed pumps 2½ Diameter of ditto 3 Stroke 24 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 3½ Stroke 24 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps Two 4½" duplex Ballast No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Three 8½" dia In Holds, &c. One 2½" dia to fore head, Two  
3½" dia to No. 1 hold, Two 3½" dia. to No. 2 hold, Two 3½" dia. to No. 3 hold, Two 3½" dia. to No. 4 hold, One  
 No. of bilge injections one sizes 5 Connected to condenser, or to circulating pump no a separate donkey suction fitted in Engine room Yes size 3½"  
 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 none  
 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock New vessel Is the screw shaft tunnel watertight Yes  
 Is it fitted with a watertight door Yes worked from upper platform

BOILERS, &c.—(Letter for record 5) Total Heating Surface of Boilers 4942 sq ft Is forced draft fitted No  
 No. and Description of Boilers 2 Single ended. byl. Mull. Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs.  
 Date of test 19. 10. 04 Can each boiler be worked separately Yes Area of fire grate in each boiler 52.34 sq ft No. and Description of safety valves to  
 each boiler 2 Spring direct Area of each valve 4.06 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 11 Mean dia. of boilers 16-0 Length 10-6 Material of shell plates steel  
 Thickness 19½ Range of tensile strength 28.5-32 Are they welded or flanged no Descrip. of riveting: cir. seams double long. seams treble  
 Diameter of rivet holes in long. seams 19½ Pitch of rivets 8½ Lap of plates or width of butt straps 18  
 Per centages of strength of longitudinal joint 86.8 Working pressure of shell by rules 181 lbs. Size of manhole in shell 13" x 16½"  
 Size of compensating ring 29" x 30" x 19½" No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 50½"  
 Length of plain part top 8 Thickness of plates bottom 19½ Description of longitudinal joint weld No. of strengthening rings —  
 Working pressure of furnace by the rules 184 lbs. Combustion chamber plates: Material steel Thickness: Sides 19½ Back 19 Top 19 Bottom 15  
 Pitch of stays to ditto: Sides 8½" x 7½" Back 8½" Top 7½" x 8½" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 183 lbs.  
 Material of stays steel Diameter at smallest part 1½" Area supported by each stay 65 sq in Working pressure by rules 180 lbs. End plates in steam space:  
 Material Steel Thickness 13½" Pitch of stays 16½" x 16½" How are stays secured D. N. H. Working pressure by rules 182 lbs. Material of stays steel  
 Diameter at smallest part 2½" Area supported by each stay 276 sq in Working pressure by rules 202 lbs. Material of Front plates at bottom steel  
 Thickness 4" Material of Lower back plate steel Thickness 25 Greatest pitch of stays 12½" Working pressure of plate by rules 185 lbs.  
 Diameter of tubes 3½" Pitch of tubes 16½" Material of tube plates steel Thickness: Front 1 Back ¾ Mean pitch of stays 9"  
 Pitch across wide water spaces 14½" Working pressures by rules 189 lbs. Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 8" x 1½" Length as per rule 31 Distance apart 8½" Number and pitch of Stays in each 3 - 4½"  
 Working pressure by rules 181 lbs. 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 —  
 Is 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 —

W555-0090



**DONKEY BOILER**— No. *111* Description *Blakes Improved Patent*  
 Made at *Middlesbrough* By whom made *Richardson Westgarth & Co* When made *26-10-02* Where fixed *Stokehold*  
 Working pressure *90 lb* tested by hydraulic pressure to *180 lb* No. of Certificate *3330* Fire grate area *25 sq ft* Description of safety valves *Spring direct*  
 No. of safety valves *2* Area of each *5.94 sq ft* Pressure to which they are adjusted *90 lb* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *4'-6"* Length *15'-6"* Material of shell plates *steel* Thickness *17/32"* Range of tensile strength *24-32* Descrip. of riveting long. seams *h.h. lap* Dia. of rivet holes *15/16"* Whether punched or drilled *drilled* Pitch of rivets *3"*  
 Lap of plating *4 5/8"* Per centage of strength of joint *88.45* Rivets *73.4* Thickness of shell crown plates *1 1/2"* Radius of do. *3'-9"* No. of Stays to do. *—*  
 Dia. of stays *—* Diameter of furnace Top *3'-9"* Bottom *6'-1 1/2"* Length of furnace *4'-4"* Thickness of furnace plates *2 1/2"* Description of joint *h.h. lap* Thickness of furnace crown plates *1 1/2"* Stayed by *h.h. lap* Working pressure of shell by rules *95.4 lb*  
 Working pressure of furnace by rules *96.6 lb* Diameter of uptake tubes *2 1/2"* Thickness of uptake plates *7 1/2"* Thickness of water tubes *3 5/8"*

**SPARE GEAR.** State the articles supplied:— *2 bon. rod top & 2 bon. rod bottom end bolts & nuts, 2 main bearings & one set of coupling bolts, one set of feed & bilge pump valves, a quantity of assorted bolts, nuts & iron, propeller, propeller shaft, one set air, circulating & ballast donkey valves, one main & one donkey feed check valves.*

The foregoing is a correct description,  
*Richardson Westgarth & Co., Limited.*  
 Manufacturer.

*M. Morris* Managing Director.  
 Dates of Survey while building  
 During progress of work in shops— *1902 June 15, 20, 23, 25, July 7, 8, 11, 13, 15, 20, 22, 25, 26, Aug. 5, 9, 10, 11, 13, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31, Sept. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, Dec. 1, 3, 5, 6*  
 During erection on board vessel— *14, 15, 20, 25, 1905, Jan. 4*  
 Total No. of visits *85*  
 Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The main steam pipes have been tested by hydraulic pressure to 360 lbs. per sq. in. and found tight.*  
*The engines and boilers of this vessel have been built under special survey in accordance with the Rules requirements, the material and workmanship being good and efficient, when completed and fitted on board were tried under steam at moorings with satisfactory result, and is now eligible, in my opinion, to have **+LMC. 1.05** marked in the Register Book.*

*It is submitted that this vessel is eligible for THE RECORD **+LMC. 1.05***

*16.1.05*  
*16.1.05*

The amount of Entry Fee. £ *3* : : When applied for, *4.1.05*  
 Special .. £ *35* : *13* : : *4.1.05*  
 Donkey Boiler Fee .. £ : : : When received, *10.1.05*  
 Travelling Expenses (if any) £ : : : *19.05*

*M. Smith*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 Assigned  
 TUES. 17 JAN 1905  
 +LMC 1.05

Certificate (if required) to be sent to West Hartlepool