

REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES.

Received at London Office.

14th SEP 1899

Survey held at Middlesbrough-on-tees.
Book.Date, first Survey 10th September 1899 Last Survey 21st July 1899(Number of Visits 72)on the Steel screw Steamer "Manchester Corporation"Tons { Gross 566.78
Net 345.73er J. WatsonBuilt at Northpool.

By whom built

Furueff, Withey & Co. Ltd When built 1899.ues made at MiddlesbroughBy whom made Sir E. Furueff, Westgarth & Co. Ltd when made 1899.lers made at 6By whom made 66666666666666666666when made 1899.istered Horse Power 357Owners Manchester Lines LtdPort belonging to Manchester.Horse Power as per Section 28 541.Is Electric Light fitted YesINES, &c. — Description of Engines Inverted Triple expansion. No. of Cylinders 3. No. of Cranks 3.meter of Cylinders 28", 46", 48" Length of Stroke 54" Revolutions per minute 66. Diameter of Screw shaft as per rule 15.2meter of Tunnel shaft as fitted 14.5" Diameter of Crank shaft journals 16" Diameter of Crank pin 16" Size of Crank webs 25" x 10.5"meter of screw 19' 0" Pitch of screw 20' 0" No. of blades 4. State whether moveable Loose Total surface 100 ft.of Feed pumps 2. Diameter of ditto 4.5" Stroke 24" Can one be overhauled while the other is at work Yes.of Bilge pumps 2. Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work Yes.of Donkey Engines 2. Sizes of Pumps Ballast 8" x 9" x 10" Duplex. No. and size of Suctions connected to both Bilge and Donkey pumpsEngine Room Three each 3.5' dia. In Holds, &c. One 2.5' in the fore, one 3.5' in the

all, one 3.5' 4' main well, one 3.5' 5' after hold well, one 2.5' 6' after well

of bilge injections 1 sizes 8" Connected to condenser, or to circulating pump b.e. Is a separate donkey suction fitted in Engine room Yes: 6"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.all connections with the sea direct on the skin of the ship Yes. Are they Valves or Cocks both.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 both.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.hat pipes are carried through the bunkers None. How are they protected ✓all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes.the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes.then were stern tube, propeller, screw shaft, and all connections examined in dry dock Yes. Is the screw shaft tunnel watertight Yes.it fitted with a watertight door Yes worked from Upper PlatformILERS, &c. — (Letter for record (r)) Total Heating Surface of Boilers 4120 ft. Is forced draft fitted Yes.and Description of Boilers 3: bpf. Mult Single ended. Working Pressure 190 lbs Tested by hydraulic pressure to 380 lbsates of test Aug. 14th 1899 Can each boiler be worked separately Yes. Area of fire grate in each boiler 54.75 ft. No. and Description of safety valves toch boiler Two: Spring loaded Area of each valve 11.04" Pressure to which they are adjusted 195 lbs. Are they fittedth easing gear Yes. Smallest distance between boilers or uptakes and bunkers or woodwork no side bunkers. Mean diameter of boilers 14' 9"length 12' 0" Material of shell plates Steel Thickness 1.56" Description of riveting: circum. seams S. P. Lap. Long. seams double straps.diameter of rivet holes in long. seams 1.56" Pitch of rivets 9" 4.5" Lap of plates or width of butt straps 1.48" x 1.56" thick.percentages of strength of longitudinal joint 85.0 Working pressure of shell by rules 191.6 lbs. Size of manhole in shell 16" x 12"ze of compensating ring 3.5" x 2.5" x 1.56" No. and Description of Furnaces in each boiler 3: horizontal Material S. Outside diameter 46"length of plain part top 8' 3" bottom 8' 3" Thickness of plates top 9" bottom 9" Description of longitudinal joint weld. No. of strengthening rings ✓orking pressure of furnace by the rules 191.3 Combustion chamber plates: Material S. Thickness: Sides 5" Back 5" Top 5" Bottom 1.56"ch of stays to ditto: Sides 8.5" x 4.5" Back 8.5" x 8.5" Top 8.5" x 8" If stays are fitted with nuts or riveted heads nuts. Working pressure by rules 194.5aterial of stays iron Diameter at smallest part 1.5" Area supported by each stay 68.4 ft. Working pressure by rules 225.4 End plates in steam space:aterial S. Thickness 1.32" Pitch of stays 14" x 14.5" How are stays secured S. & W. Working pressure by rules 201.8 Material of stays Sdiameter at smallest part 2.5" Area supported by each stay 246.5 ft. Working pressure by rules 198.7 Material of Front plates at bottom Sthickness 1.6" Material of Lower back plate S. Thickness 1" Greatest pitch of stays 13" Working pressure of plate by rules 223.2diameter of tubes 2.5" Pitch of tubes 3.5" x 3.5" Material of tube plates S. Thickness: Front 1.5" x 1.5" Back 1.5" Mean pitch of stays 14" x 14.5"itch across wide water spaces 13.5" Working pressures by rules 12.358.4 Girders to Chamber tops: Material S. Depth andickness of girder at centre 8.5" x 15" Length as per rule 30" Distance apart 8.5" Number and pitch of Stays in each 2: 8"orking pressure by rules 196.8 Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler workedparately ✓ Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivetles ✓ Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓f stiffened with rings ✓ Distance between rings ✓ Working pressure by rules ✓ End plates: Thickness ✓ How stayed ✓orking pressure of end plates ✓ Area of safety valves to superheater ✓ Are they fitted with easing gear ✓

DONKEY BOILER— Description *None fitted*

Made at ✓ By whom made ✓ When made ✓ Where fixed ✓
 Working pressure ✓ tested by hydraulic pressure to ✓ No. of Certificate ✓ Fire grate area ✓ Description of safety valves ✓
 No. of safety valves ✓ Area of each ✓ Pressure to which they are adjusted ✓ If fitted with easing gear ✓ If steam from main boilers can enter the donkey boiler ✓ Diameter of donkey boiler ✓ Length ✓ Material of shell plates ✓ Thickness ✓
 Description of riveting long. seams ✓ Diameter of rivet holes ✓ Whether punched or drilled ✓ Pitch of rivets ✓
 Lap of plating ✓ Per centage of strength of joint Rivets ✓ Plates ✓ 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 ✓ Thickness of furnace crown plates ✓ Stayed by ✓ Working pressure of shell by rules ✓
 Working pressure of furnace by rules ✓ Diameter of uptake ✓ Thickness of uptake plates ✓ Thickness of water tubes ✓

SPARE GEAR. State the articles supplied: *2 Cast iron propeller blades, 2 top & 2 bottom end, 2 main bearing & 1 set Coupling bolts & nuts, 1 set each feed & bilge pump valves, 1 set each feed & ballast donkey valves, 1 set air pump valves, 2 pis. valve rings, 1 set each Rambottom rings & 4 in. pistons, 2 Safety valve Springs, 1 escape valve Spring each set bolts & nuts assorted & iron of various size*
 The foregoing is a correct description,
FOR MR CHRISTOPHER FURNESS, WESTGARTH & CO., LD. Manufacturers of Engines & Boilers.

J. M. Westcott
 Dates of Survey while building
 During progress of work in shops—**MANAGING DIRECTOR.** 1898. Sept. 10. 12. 14. 16. 20. 23. 27. 29. Oct. 3. 5. 11. 15. 18. 21. 25. 27. 31. Nov. 1. 2. 9. 12. 15. 16. 17. 22. 27.
 During erection on board vessel—*Dec. 3. 7. 8. 12. 15. 16. 19. 20. 22. 23. 27. 1899. Jan. 5. 11. 13. 16. 18. 20. 23. 24. 26. 30. Feb. 3. 4. 11. 14. 14. 17. 19. 2*
 Total No. of visits *Seventy-eight* Hpl. 1899. May 10. June 2. 6. 7. Aug. 25. Sept. 11. 22. 7 in.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The Engines and Boilers of this vessel have been built under Special Survey in accordance with the Rule requirements. The materials, and workmanship are good. When completed and fitted on board, they were tried under steam at moorings with satisfactory results. and are now in good working order, and in our opinion entitled to the record + L.M.C. 9. 99. in the Society's Register Books.*

Boiler plan retained for duplicate.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 9. 99. Elc Lt F.D.

EL
 28.9.99

The amount of Entry Fee. . . £ 3 : 0 :
 Special . . . £ 44 : 1 :
 Donkey Boiler Fee . . . £ : :
 Travelling Expenses (if any) £ : :

When applied for. 17.9.99
 When received. 27.9.99
Richard Hives
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute THUR 28 SEP 1899 FRI. 29 SEP 1899

Assigned + L.M.C. 9. 99