

REPORT ON MACHINERY.

Port of *Belfast* Received at London Office *19*

No. in Survey held at *Belfast* Date first Survey *27th Oct 1903* Last Survey *21st June 1904*

eg. Book. *P.P. "Parana"* (Number of Visits *62*) Gross *1897*

on the *Belfast* By whom built *Norfolkman Clark & Co. Ltd.* Tons *2503*

aster *Belfast* By whom made *Norfolkman Clark & Co. Ltd.* when made *1904*

Engines made at *Belfast* By whom made *Norfolkman Clark & Co. Ltd.* when made *1904*

Boilers made at *Belfast* By whom made *Norfolkman Clark & Co. Ltd.* when made *1904*

Registered Horse Power *4301* Owners *Royal Mail S.S. Co. Ltd.* Port belonging to *Belfast*

om. Horse Power as per Section 28 *4301* Is Refrigerating Machinery fitted *Yes* Is Electric Light fitted *Yes*

GINES, &c.—Description of Engines *Triple Expansion.* No. of Cylinders *3* No. of Cranks *3*

Dia. of Cylinders *24"-39"-67"* Length of Stroke *48"* Revs. per minute *68* Dia. of Screw shaft *as per rule 14.28* Lgth. of stern bush *59*

Dia. of Tunnel shaft *as per rule 12.96* Dia. of Crank shaft journals *as per rule 13.55* Dia. of Crank pin *14"* Size of Crank webs *25 1/2 x 9 1/2* Dia. of thrust shaft under

rollers *14"* Dia. of screw *17"-0"* Pitch of screw *18"-3"* No. of blades *4* State whether moveable *Yes* Total surface *84 ft.*

No. of Feed pumps *2* Diameter of ditto *4"* Stroke *24"* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *2* Diameter of ditto *4"* Stroke *24"* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *4* Sizes of Pumps *General 7 1/2 x 4 1/2 x 6" Duplex* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *4-32"* *Wells 5 1/2 x 5 1/2 x 2"* In Holds, &c. *7-32" & 1-22"*

No. of bilge injections *2* sizes *5 1/2"* Connected to condenser, or to circulating pump *Pump* Is a separate donkey suction fitted in Engine room & size *Yes-3 1/2"*

Are all the bilge suction pipes fitted with roses *Yes* Are the roses in Engine room always accessible *Yes* Are the sluices in 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 *None*

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 *Fire Hold suction* How are they protected *Wood casings*

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 *Before Launching* screw shaft tunnel watertight *Stitch & Co.*

Is it fitted with a watertight door *Yes* worked from *Upper Platform Engine Room*

BOILERS, &c.—(Letter for record *S*) Total Heating Surface of Boilers *6000 sq ft* Is forced draft fitted *Yes-Flour*

No. and Description of Boilers *3. Single End. Cylindrical* Working Pressure *205* Tested by hydraulic pressure to *410 lbs*

Date of test *13-4-04* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *50 sq ft* No. and Description of safety valves to

each boiler *2. Direct Spring* Area of each valve *8.29 sq in* pressure to which they are adjusted *275 lbs* Are they fitted with easing gear *Yes*

Smallest distance between boilers *on uptakes* and bunkers or woodwork *21"* Mean dia. of boilers *13'-6"* Length *11'-6"* Material of shell plates *Steel*

Thickness *1 1/2"* Range of tensile strength *28-32* Are they welded or flanged *No* Descrip. of riveting: cir. seams *Lap & Double* Butts *Double*

Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *9 1/2"* Lap of plates or width of butt straps *20 3/8"*

Per centages of strength of longitudinal joint *87.8* Working pressure of shell by rules *233 lbs* Size of manhole in shell *16" x 12"*

Size of compensating ring *McNeil* No. and Description of Furnaces in each boiler *3-Drum* Material *Steel* Outside diameter *42 1/4"*

Length of plain part *top 5"* Thickness of plates *crown 3 3/4"* Description of longitudinal joint *Weld* No. of strengthening rings *0*

Working pressure of furnace by the rule *230 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *5"* Back *5 1/2"* Top *5"* Bottom *1 1/2"*

Pitch of stays to ditto: Sides *8" x 7 1/2"* Back *8" x 7 1/2"* Top *7 1/2" x 7 1/2"* If stays are fitted with nuts or riveted heads *Nuts inside* Working pressure by rules *223 lbs*

Material of stays *Steel* Diameter at smallest part *1 1/2"* Area supported by each stay *60 sq in* Working pressure by rules *251 lbs* End plates in steam space:

Material *Steel* Thickness *1 1/2"* Pitch of stays *16 1/2" x 15 1/2"* How are stays secured *Water Rivets* Working pressure by rules *275 lbs* Material of stays *Steel*

Diameter at smallest part *2 1/2", 2 1/4"* Area supported by each stay *255 1/2 sq in* Working pressure by rules *217 lbs* Material of Front plates at bottom *Steel*

Thickness *1"* Material of Lower back plate *Steel* Thickness *4 1/2"* Greatest pitch of stays *13 1/2"* Working pressure of plate by rules *254 lbs*

Diameter of tubes *2 1/2"* Pitch of tubes *32" x 35"* Material of tube plates *Steel* Thickness: Front *1"* Back *1 1/2"* Mean pitch of stays *7 1/2" x 7 1/4"*

Pitch across wide water spaces *3 1/2" x 3 1/2"* Working pressures by rules *211 lbs* Girders to Chamber tops: Material *Steel* Depth and

thickness of girder at centre *9" x (5" x 2)* Length as per rule *29 1/2"* Distance apart *7 1/2" x 7 1/2"* Number and pitch of Stays in each *3-7 1/2"*

Working pressure by rules *246 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*

DONKEY BOILER—

No. 1 Description

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 _____
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 _____ 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:—

Crank Shaft: 1 Propeller shaft: bronze propeller blade: 1 saw brush for main bearings: sets top & bottom end bushes: 1 screw rod & trap complete: eccentric pulley: air pump bucket, rod, guide & lead valve: slide valve spindle: piston packing rings: centrifugal pump impeller, set: and all gear to Lloyd's Rules extra.

The foregoing is a correct description,

FOR WORKMAN, CLARK & CO. LIMITED

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1903. Oct 27. Nov 4. 6. 9. 13. 17. 23. 26. 30 Dec 3. 7. 12. 14. 17. 1904. Jan 5. 13.
During erection on board vessel - - 15. 18. 22. 26. Feb. 1. 4. 11. 12. up to June 21.
Total No. of visits 62

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

General Remarks (State quality of workmanship, opinions as to class, &c.)

Material of screw shaft *Ingot steel* 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 *✓*

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The materials used in its construction, and the workmanship throughout, are of good description. On trial under steam in Belfast Lough the machinery worked satisfactorily.

In my opinion, it is eligible to have record *L.M.C. 6-04*.

Force Draft & Electric Light.

Separate Reports on the Electric Light, and on the Refrigerating Machinery, will be forwarded later.

It is submitted that
this vessel is eligible for
THE RECORD

L.M.C. 6.04 F.D. ELEC. LIGHT
REF. MCHY.

24.6.04
24.6.04

The amount of Entry Fee. £ 3 : - : When applied for, 10-6-1904
Special £ 41 10 : :
Donkey Boiler Fee . . . £ : : :
Travelling Expenses (if any) £ : : : 14-6-1904

Committee's Minute

TUES. 28 JUN 1904

Assigned

*+ L.M.C. 6.04**F.D. Elec. Light*MACHINERY CERTIFICATE
WRITTEN.

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



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