

REPORT ON MACHINERY.

NEWCASTLE ON TYNE No 60254
No. 24800

Port of Sunderland
No. in Survey held at Sunderland
Reg. Book. S.S. "Belvetia"
on the S.S. "Belvetia"
Date, first Survey 21 May 1910 Last Survey 10 April 1911
(Number of Visits 58)
Received at London Office WED. 19 APR 1911
WED. 24 MAY 1911

Master W. Lowden & Co. Built at Newcastle By whom built Armstrong Whitworth & Co. Tons Gross 4975 Net 2745
Engines made at Sunderland By whom made G. Clark Ltd When built 1911
Boilers made at Sunderland By whom made G. Clark Ltd when made 1911
Registered Horse Power _____ Owners W. Lowden & Co. when made 1911
Nom. Horse Power as per Section 28 480 Is Refrigerating Machinery fitted for cargo purposes no Port belonging to Liverpool
Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple expansion
Dia. of Cylinders 26" x 44" x 48" Length of Stroke 48" Revs. per minute 65 No. of Cylinders 3 No. of Cranks 3
Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Dia. of Screw shaft as per rule 14.5" Material of screw shaft Steel
in the propeller boss yes If the liner is in more than one length are the joints burned yes Is the after end of the liner made water tight
between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive yes If the liner does not fit tightly at the part
liners are fitted, is the shaft lapped or protected between the liners yes If two
Dia. of Tunnel shaft as per rule 13.12" Dia. of Crank shaft journals as per rule 13.48" Length of stern bush 5'-1 1/4"
as fitted 13.2" Dia. of Crank pin 14 1/4" Dia. of Crank webs 2 1/4" x 9 1/4" Dia. of thrust shaft under
collars 14 5/8" Dia. of screw 1 1/2" Pitch of Screw 1 1/2" No. of Blades 4 State whether moveable no Total surface 104 sq ft
No. of Feed pumps 2 Weirs with float valve Diameter of ditto 4 1/2" Stroke 21" Can one be overhauled while the other is at work yes
No. of Bilge pumps Two Diameter of ditto 4 1/2" Stroke 30" Can one be overhauled while the other is at work yes
No. of Donkey Engines 3 Sizes of Pumps 2 Ballast 1 1/2 x 5 x 4 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 4 off 3 1/2" dia In Holds, &c. Two in each hold 3 1/2" dia
No. of Bilge Injections 1 sizes 6 1/2" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room yes size Two @ 4" dia
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 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 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 yes
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 24/3/11 of Stern Tube 7/4/11 Screw shaft and Propeller 4-4-11
Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Sops platform

BOILERS, &c.—(Letter for record) Speers & Sons Manufacturers of Steel
Total Heating Surface of Boilers 6491 Is Forced Draft fitted yes No. and Description of Boilers Three single ended
Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 25-10-10 No. of Certificate 2841
Can each boiler be worked separately yes Area of fire grate in each boiler 53.4 sq ft No. and Description of Safety Valves to
each boiler Two spring loaded Area of each valve 9.62 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 2'-6" Mean dia. of boilers 14'-3 3/4" Length 11'-6" Material of shell plates Steel
Thickness 1 9/16" Range of tensile strength 28 3/4 - 32 kts Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R.
long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 1/8" Lap of plates or width of butt straps 1 1/8"
Per centages of strength of longitudinal joint rivets 88.9 Working pressure of shell by rules 182.5 lbs Size of manhole in shell 16" x 13"
Size of compensating ring dished No. and Description of Furnaces in each boiler 3 corr. Bull Material Steel Outside diameter 40"
Length of plain part top 9 1/16" Thickness of plates crown 3 1/16" Description of longitudinal joint weld No. of strengthening rings none
bottom 3 1/16" Working pressure of furnace by the rules 220 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 1/8"
Pitch of stays to ditto: Sides 9 1/4" x 9 3/4" Back 10 x 9" Top 9 x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lbs
Material of stays Steel Diameter at smallest part 1 19/32" Area supported by each stay 90 sq in Working pressure by rules 203 lbs End plates in steam space:
Material Steel Thickness 1 5/16" Pitch of stays 20 1/2" x 20 1/2" How are stays secured D. nuts Working pressure by rules 185 lbs Material of stays Steel
Diameter at smallest part 4 1/8" Area supported by each stay 199.5 sq in Working pressure by rules 188 lbs Material of Front plates at bottom Steel
Thickness 1 5/16" Material of Lower back plate Steel Thickness 3 1/32" Greatest pitch of stays 14 1/4" x 19 1/2" Working pressure of plate by rules 183 lbs
Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 3/8" Material of tube plates Steel Thickness: Front 1 5/16" Back 3/4" Mean pitch of stays 9.45"
Pitch across wide water spaces 13 1/2" Working pressures by rules 185 lbs Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 9 3/4" x 13 1/4" Length as per rule 36 13/16" Distance apart 9 1/2" Number and pitch of stays in each 3 @ 9"
Working pressure by rules 182 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 _____
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 _____

5 7/8
6 7/8
6 7/8
6 7/8
6 7/8
6 7/8
6 7/8
6 7/8
6 7/8
6 7/8

2.40
35 x 60
26.25
25.27.31
1.1

VERTICAL DONKEY BOILER— Manufacturers of Steel

Form with fields for No., Description, Made at, By whom made, When made, Where made, Working pressure, Date of test, No. of Certificate, Fire grate area, Description of Safety Valves, etc.

SPARE GEAR. State the articles supplied:— 1 Propeller, 2 Bottom End bolts & nuts, 2 On roll top end bolts & nuts, 2 Main Bearing bolts & nuts, 1 set coupling bolts, 1 set feed & fulge pump washers & seats, 1/2 set check washers, 17 Lock tubes & 100 ferrules, 12 Piston Bolts & nuts, 1 Sail shaft, 1 pair Crank P. Brasses, 1 valve spindle, 1 set feed dky & ballast dky valves, safety valve spring, Assorted bolts, nuts & iron.

The foregoing is a correct description, FOR GEORGE CLARK, LIMITED Manufacturer. James C. Clark.

Dates of Survey while building, During progress of work in shops, During erection on board vessel, Total No. of visits, Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders, Slides, Covers, Pistons, Rods, Connecting rods, Crank shaft, Thrust shaft, Tunnel shafts, Screw shaft, Propeller, Stern tube, Steam pipes tested, Engine and boiler seatings, Engines holding down bolts, Completion of pumping arrangements, Boilers fixed, Engines tried under steam, Main boiler safety valves adjusted, Thickness of adjusting washers, Material of Crank shaft, Identification Mark on Do., Material of Thrust shaft, Identification Mark on Do., Material of Tunnel shafts, Identification Marks on Do., Material of Screw shafts, Identification Marks on Do., Material of Steam Pipes, Test pressure

General Remarks (State quality of workmanship, opinions as to class, &c.) The Machinery of this vessel has been built under special survey, the materials and workmanship are of good quality, the boilers were satisfactorily tested by hydraulic pressure. The whole of the machinery has been securely fitted on board & satisfactorily tried under steam.

The machinery of this vessel is in good & safe working condition & eligible in my opinion to be classed & have record L.M.C. 4.11. in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 5.11.

Handwritten signatures and dates: J.W. 24/5/11, A.P.R.

William P. Dutton, Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses (if any)

Committee's Minute, Assigned, TUE. 30 MAY 1911

MACHINERY CERTIFICATE WRITTEN.

