

# REPORT ON MACHINERY.

No. 6895

Received at London Office

JAN 21 1911

of writing Report 11<sup>th</sup> Jan 1911 When handed in at Local Office 11<sup>th</sup> Jan 1911 Port of Belfast  
 in Survey held at Belfast Date, First Survey April 18 1910 Last Survey 11<sup>th</sup> Jan 1911  
 Book. on the T. S. S. "Arankola" (Number of Visits 99)

ster Built at Belfast By whom built Worthman Clark & Co Ltd Tons { Gross 4026  
 Net 1801  
 When built 1911

nines made at Belfast By whom made Worthman Clark & Co Ltd (N<sup>o</sup> 298) when made 1911

lers made at B By whom made B (N<sup>o</sup> 298) when made 1911

istered Horse Power Owners British India Steam Navigation Co Ltd Port belonging to Glasgow

n. Horse Power as per Section 28 1346 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

GINES, &c.—Description of Engines Twin Quadruple Expansion No. of Cylinders 8 No. of Cranks 8

. of Cylinders 24 1/2 3 5 50 70 Length of Stroke 14 1/2 Revs. per minute 100 Dia. of Screw shaft as per rule 14 1/2 Material of Steel  
 as fitted 15 screw shaft

he 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

the propeller boss Yes If the liner is in more than one length are the joints burned Yes If the liner does not fit tightly at the part

ween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If two

rs are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 5' 0"

. of Tunnel shaft as per rule 13 1/2 Dia. of Crank shaft journals as per rule 13 1/2 Dia. of Crank pin 14 Size of Crank webs 14 1/2 x 9 1/2 Dia. of thrust shaft under

ars 14 Dia. of screw 15 1/2 Pitch of Screw 20 1/2 No. of Blades 3 State whether moveable Yes Total surface 63 sq ft

of Feed pumps 2 Watts Diameter of ditto 12 1/2 Stroke 3 1/2 Can one be overhauled while the other is at work Yes

of Bilge pumps 2 Diameter of ditto 8 1/2 Stroke 1 1/2 Can one be overhauled while the other is at work Yes

of Donkey Engines 14 Sizes of Pumps See other side No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 4' 3" x 1' 3 1/2" : 4' 3" x 1' 3 1/2" In Holds, &c. N<sup>o</sup> 1-2-3 : N<sup>o</sup> 2-2-3 : N<sup>o</sup> 3-1-3

of Bilge Injections 2 sizes 9" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes-3' 3 1/2"

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

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

at pipes are carried through the bunkers none How are they protected Yes

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

tes of examination of completion of fitting of Sea Connections 31.10.10 of Stern Tube 31.10.10 Screw shaft and Propeller 31.10.10

the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from 1st platform

MLERS, &c.—(Letter for record 8) Manufacturers of Steel Wm Beardmore & Steel Co of Scotland

al Heating Surface of Boilers 21950 Is Forced Draft fitted Yes No. and Description of Boilers 2 Double ended & 4 single ended

orking Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 27.10.10 No. of Certificate 439

each boiler be worked separately Yes Area of fire grate in each boiler 139.3 sq ft No. and Description of Safety Valves to

boiler Triple spring loaded Area of each valve 12.56 sq in Pressure to which they are adjusted 220 lbs Are they fitted with easing gear Yes

allest distance between boilers or uptakes and bunkers or woodwork 13 1/2 Mean dia. of boilers 15.6 Length 20.1 Material of shell plates Steel

ckness 1 1/8 Range of tensile strength 29463 lbs Are the shell plates welded or flanged No Descrip. of riveting: cir. seems O. & T. R.

. seams T. R. O. B. S. Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 10 1/2 Lap of plates or width of butt straps 23 1/4

centages of strength of longitudinal joint rivets 90 Working pressure of shell by rules 250 lbs Size of manhole in shell 17" x 13"

e of compensating ring W. & M. No. and Description of Furnaces in each boiler 4 Harrison Material Steel Outside diameter 42 1/4

ngth of plain part top 4 1/2 Thickness of plates crown 1 1/4 Description of longitudinal joint weld No. of strengthening rings 4

orking pressure of furnace by the rules 245 Combustion chamber plates: Material Steel Thickness: Sides 1 1/4 Back 1 1/4 Top 1 1/4 Bottom 1 1/4

ch of stays to ditto: Sides 8' x 7 1/2" Back 8' x 7 1/2" Top 8' x 6 1/4" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 217

terial of stays Steel Diameter at smallest part 1 7/8 Area supported by each stay 61 Working pressure by rules 230 End plates in steam space:

terial Steel Thickness 1 1/8 Pitch of stays 19 1/2 x 15 1/2 How are stays secured O. N. W. & L. Working pressure by rules 215 Material of stays Steel

er at smallest part 7.85 Area supported by each stay 302.35 Working pressure by rules 229 Material of Front plates at bottom Steel

ckness 1 Material of Lower back plate Yes Thickness Yes Greatest pitch of stays Yes Working pressure of plate by rules Yes

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

ch across wide water spaces 13 1/2 Working pressures by rules 218 lbs Girders to Chamber tops: Material Steel Depth and

ckness of girder at centre 8' x 20 3/4 Length as per rule 4' 2 1/8 Distance apart 8 1/4 Number and pitch of stays in each 60 6 1/4 x 7 1/16

orking pressure by rules 215 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked

rately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet

Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes

tiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes

orking pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

WS32-0032



# VERTICAL DONKEY BOILER—Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

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 \_\_\_\_\_ Radius of do. \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— 2 connecting rod top end bolts & nuts: 2 connecting rod bottom end bolts & nuts: 2 main bearing bolts: 1 set of coupling bolts: a quantity of assorted bolts & nuts: 1 set of various pipes: spare tail shaft: 2 propeller blades: 1 set of piston rings for each cylinder: 2 valve spindles complete: 2 pairs of crank bushes etc.

The foregoing is a correct description,  
FOR WORKMAN, CLARK & CO., LIMITED  
Manufacturer.

Dates of Survey while building: During progress of work in shops— April 1-14-21 May 4-18-23-24-25-31 June 3-9-15-20-30 July 29 August 3-5-8-11-17 to Oct. 31  
During erection on board vessel— Nov. 3-4-9-11-16-18-19-22-30 Dec. 6-9-12-16-19-20-21-25-27 Jan. 2-4-5-6-9-10-11  
Total No. of visits 79

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 22-8-10 Slides 28-9-10 Covers 18-10-10 Pistons 6-10-10 Rods 6-10-10  
Connecting rods 26-8-10 Crank shaft 28-9-10 Thrust shaft 18-10-10 Tunnel shafts 18-10-10 Screw shaft 6-10-10 Propeller 17-10-10  
Stern tube 19-10-10 Steam pipes tested 18-19-30-11-10 Engine and boiler seatings 31-10-10 Engines holding down bolts 12-10-10  
Completion of pumping arrangements 20-12-10 Boilers fixed 30-11-10 Engines tried under steam 11-11  
Main boiler safety valves adjusted 16-12-10 Thickness of adjusting washers 7/16 to 9/16  
Material of Crank shaft Steel Identification Mark on Do. 298 Material of Thrust shaft Steel Identification Mark on Do. 298  
Material of Tunnel shafts Steel Identification Marks on Do. 298 Material of Screw shafts Steel Identification Marks on Do. 298  
Material of Steam Pipes Wrought iron Test pressure 645 lbs per sq in

General Remarks (State quality of workmanship, opinions as to class, &c. Donkeys: Ballast 12" x 15" x 15": Bilge 6" x 6":  
Waste box 8" x 6" x 21": Air line 10 1/2" x 11 1/2" x 11 1/2" x 12": 2 Waste box air pumps 11" x 20" x 15": 2 Waste box 17" x 12 1/2" x 12 1/2"  
Gen. pers. 12 1/2" x 17" x 24": Ash G. 10" x 7" x 15": Fan 8" x 8" x 18": Air Water 6" x 6" x 13": S.W. pump 6" x 6" x 13"

The machinery has been built under special survey: the material and workmanship being good, and satisfactorily tried under steam.  
It is submitted that above vessel is eligible to a record of + L.M.C. 1. in the Register Book.

It is submitted that  
this vessel is eligible for  
THE RECORD + L.M.C. 1. II.

F.D. J.W.D.  
12/11

The amount of Entry Fee £ 3-0-0: When applied for, 11-1-1911  
Special £ 78-13-0:  
Donkey Boiler Fee £ : :  
Travelling Expenses (if any) £ : :  
When received, 20-1-1911

Committee's Minute

Assigned

MACHINERY CERTIFICATE  
WRITTEN.



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