

REPORT ON MACHINERY.

TUES. 6 JUN 1899

Port of *Amsterdam*

Received at London Office 18

No. in Survey held at *Amsterdam*

Date, first Survey *3rd July 1898* Last Survey *27 May 1899*

Book. *15* on the *Steel Screw Steamer Welbourn*

(Number of Visits *61*)

Tons { Gross *1348.5*
Net *1033.86*

Master *W. Duit* Built at *Amsterdam* By whom built *Red Scheepbouw Maats* When built *1898-99*

Machines made at *Amsterdam* By whom made *Red Scheepbouw Maats* when made *1898-99*

Wheels made at *Amsterdam* By whom made *W & J. Huyver* when made *1898-99*

Registered Horse Power *830* Owners *Stoom Maats Oostzee*

Port belonging to *Amsterdam*

Net Horse Power as per Section 28 *156* Is Refrigerating Machinery fitted *No*

Is Electric Light fitted *No*

GINES, &c.—Description of Engines *Inverted triple Expansion* No. of Cylinders *three* No. of Cranks *three*

No. of Cylinders *18 1/2 x 29 1/8 x 47 1/4* Length of Stroke *36"* Revs. per minute *78* Dia. of Screw shaft *9 1/4* Lgth. of stern bush *38 7/8*

No. of Tunnel shaft *as per rule 8 1/16* Dia. of Crank shaft journals *as per rule 8 9/16* Dia. of Crank pin *9 1/16* Size of Crank webs *12 x 6 1/2* Dia. of thrust shaft under

bars *9 1/16* Dia. of screw *13'-0"* Pitch of screw *15'-0"* No. of blades *4* State whether moveable *No* Total surface *54 7/8*

No. of Feed pumps *two* Diameter of ditto *3"* Stroke *18"* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *two* Diameter of ditto *3"* Stroke *18"* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *two* Sizes of Pumps *duplex 4 x 6* No. and size of Suctions connected to both Bilge and Donkey pumps

in Engine Room *three of 3" boiler room two of 2 1/2" diam* In Holds, &c. *forehold two of 3", in afterhold two of 2 1/4"*

in tunnel well *one of 3" diam.*

No. of bilge injections *one* sizes *6"* Connected to condenser, or to circulating pump *Circul* Is a separate donkey suction fitted in Engine room & size *Yes. 2 1/2"*

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 *two suction for afterhold* How are they protected *boxed in with iron plating*

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 *23 of May 99* Is the screw shaft tunnel watertight *Yes*

Is it fitted with a watertight door *Yes* worked from *Engine platform*

BOILERS, &c.— (Letter for record *(S)*) Total Heating Surface of Boilers *255309 ft* Is forced draft fitted *No*

No. and Description of Boilers *Cylindrical single ended* Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs*

Date of test *7.4.99* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *404 ft* No. and Description of safety valves to

each boiler *Two direct spring* Area of each valve *5.94 sq in* Pressure to which they are adjusted *160 lbs* Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers *11"* Mean dia. of boilers *11'-5"* Length *9'-5"* Material of shell plates *Steel*

Thickness *15/16* Range of tensile strength *27/32* Are they welded or flanged *flanged* Descrip. of riveting: cir. seams *double* long. seams *double butt true*

Diameter of rivet holes in long. seams *1"* Pitch of rivets *7/16* Lap of plates or width of butt straps *16"*

Per centages of strength of longitudinal joint rivets *85.94* Working pressure of shell by rules *174 lbs* Size of manhole in shell *16" x 12"*

Size of compensating ring *Mac Neil* No. and Description of Furnaces in each boiler *two plain* Material *Steel* Outside diameter *3'-4 1/2"*

Length of plain part *6'-8"* Thickness of plates *3/4* Description of longitudinal joint *Welded* No. of strengthening rings *none*

Working pressure of furnace by the rules Combustion chamber plates: Material *Steel* Thickness: Sides *7/8"* Back *7/8"* Top *5/8"* Bottom *3/4"*

Pitch of stays to ditto: Sides *9"* Back *9"* Top *9"* If stays are fitted with nuts or riveted heads *With nuts* Working pressure by rules *166 lbs*

Material of stays *Steel* Diameter at smallest part *1 1/2"* Area supported by each stay *81 sq in* Working pressure by rules *174 lbs* End plates in steam space:

Material *Steel* Thickness *1"* Pitch of stays *18"* How are stays secured *flange nuts riveted on shell* Working pressure by rules *166 lbs* Material of stays *Steel*

Diameter at smallest part *2.84* Area supported by each stay *324 sq in* Working pressure by rules *198 lbs* Material of Front plates at bottom *Steel*

Thickness *7/8"* Material of Lower back plate *Steel* Thickness *7/8"* Greatest pitch of stays *21 1/4 plate doubled with 1 1/4 plate* Working pressure of plate by rules *170 lbs*

Diameter of tubes *2 1/4"* Pitch of tubes *4 1/2"* Material of tube plates *Steel* Thickness: Front *7/8"* Back *7/8"* Mean pitch of stays *9"*

Pitch across wide water spaces *15 1/4 plate doubled with 7/16 plate* Working pressures by rules *225 338 8163* Girders to Chamber tops: Material *Steel* Depth and

thickness of girder at centre *8 1/8" - 1"* Length as per rule *25 7/8"* Distance apart *9"* Number and pitch of Stays in each *One*

Working pressure by rules *176 lbs* Superheater or Steam chest; how connected to boiler *Can the superheater be shut off and the boiler worked*

separately *Yes* Diameter *✓* Length *✓* Thickness of shell plates *✓* Material *✓* Description of longitudinal joint *✓* Diam. of rivet

✓ 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 *✓*

Referred to the Chief Engineer Surveyor

Lloyd's Register
Foundation

DONKEY BOILER— No. Description *Cochrane's patent*
 Made at *Wickenhead* By whom made *Messrs Cochrane & Co* When made *1898* Where fixed *In Stokel*
 Working pressure *100* tested by hydraulic pressure to *100* No. of Certificate *1533* 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 *Yes* If steam from main boilers can enter the donkey boiler *No* 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 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
 Certificate signed by *Messrs E.C. Wheeler & P. Mc Gregor, Bank on boiler*
 SPARE GEAR. State the articles supplied: No. 1533
LLOYD'S TEST
100
P.M.C.

Two pistonrod bolts and nuts, two Crankpin bolts and nuts, two mainbearing bolts and nuts, one set of coupling bolts and nuts, one set of valves for feed and bilge pumps, one propeller Condenser & boiler tubes and an assortment bolts and nuts.
 The foregoing is a correct description, *REDERLANDSCHE FABRIEK*
VAN WERKTUIGEN EN SPOORWEG-MATERIEEL.
 Manufacturer. *P. DEN DIRECTEUR* *J. M. M. S. H. S.*

Dates of Survey while building
 During progress of work in shops - *From the 3rd of July 1898*
 During erection on board vessel - *up to 24th of May 1899*
 Total No. of visits *61.*
 Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *No*

General Remarks (State quality of workmanship, opinions as to class, &c.)
Engines have been carefully surveyed during construction, all castings & Steel Shafting, connecting and pistonrods tested according to rules. Cylinders and Condenser, main and auxiliary steam pipes tested under hydraulic pressure the latter under twice the working pressure found perfectly tight.
Boilers made according to the approved plan which is now returned to London Office, and all the material tested as required by rules are well fitted together and all holes drilled in place, Workmanship very good. Test Boilers to 320 lbs. found Port boiler which was first under the double pressure combustion chamber backplates in way of wide water space slightly set in. Eight 1 1/2" screw stays have been placed in the combustion chamber backs in both boilers. Boilers retested under twice the working pressure were found tight in respect and no more setting whatever.
The boilers when being transported from the works to the vessel the lighter capsized and the boilers went down in the river and had sustained some small damage, to Port boiler fore tubeplate and one of the furnace mouths, tubeplate in case of one tube slightly set in, a new tube has been fitted and six rivets in one of the furnace mouths removed & replaced by new ones, tested boiler again under double pressure at my recommendation found same to be good & tight.
Examined machinery under steam and attended the trial trip. Engines worked without any hitches and without water. Boilers perfectly tight, & machinery including evaporator and general pipe arrangement good. I am of opinion that the machinery of this vessel is eligible to be recorded in the Register Book.

The amount of Entry Fee... £ 3 : 0
 Special... £ 13 : 8
 Donkey Boiler Fee... £ :
 Travelling Expenses (if any) £ 16
 When applied for, 18...
 When received, 18...
 Committee's Minute
 Assigned
 TUES. 20 JUN 1899
 + L.M.C. 599
 MACHINERY CERTIFICATE WRITTEN
 L.M.C. 5.99
 It is submitted that this vessel is eligible for THE RECORD.
 2020
 Lloyd's Register of British & Foreign Shipping
 20/6/99

Certificate (if required) to be sent to Committee's Minute