

## REPORT ON MACHINERY.

No. 22304

Port of

Sunderland

Received at London Office

17 JUN 1905

No. in Survey held at

Sunderland

Reg. Bo. No.

Date, first Survey

20th January

Last Survey

6th June 1905

on the

S. S. "Volmer"

Number of Visits

35

Master N. P. Jorgensen

Built at

Sunderland

By whom built

Sunderland Shipbuilding Co.

Tons

Gross 1344

Engines made at

Sunderland

By whom made

North Eastern Marine Engineering Co. Ltd when made

When built

1905

Boilers made at

Sunderland

By whom made

North Eastern Marine Engineering Co. Ltd when made

When made

1905

Registered Horse Power

Owners

Aktieselskabet Dampskibsselskabet

Port belonging to

Copenhagen

Nom. Horse Power as per Section 28

145

Is Refrigerating Machinery fitted

no

Is Electric Light fitted

no

## ENGINES, &amp;c.—Description of Engines

Inverted triple expansion

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

18", 29", 48"

Length of Stroke

33"

Revs. per minute

74

Dia. of Screw shaft

as per rule 10.35

Material of

Iron

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

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 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

Yes

If two liners are fitted, is the shaft lapped or protected between the liners

Yes

Dia. of Tunnel shaft

as per rule 8.94

Dia. of Crank shaft journals

as per rule 9.36

Length of stern bush

as fitted 9.5

Dia. of Crank pin

9.5

Size of Crank webs

15" x 5 7/8"

Dia. of thrust shaft under

collars

9.5

Dia. of screw

13.3"

Pitch of screw

14.0"

No. of blades

4

State whether moveable

no

Total surface

54 sq ft

No. of Feed pumps

2

Diameter of ditto

3"

Stroke

15"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

Diameter of ditto

3 1/2"

Stroke

15"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

2

Sizes of Pumps

6" x 7" x 9" &amp; 5" x 3" x 4 1/2"

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

3 of 2 1/2"

In Holds, &amp;c.

2 of 2 1/2" in each &amp; 1 of 3" in after

No. of bilge injections

1

sizes

3 1/2"

Connected to condenser, or to circulating pump

pump

Is a separate donkey suction fitted in Engine room &amp; 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

Yes

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock

new

Is it fitted with a watertight door

Yes

worked from

top platform

Is the screw shaft tunnel watertight

Yes

## BOILERS, &amp;c.—

(Letter for record

S)

Total Heating Surface of Boilers

1256 sq ft

Is forced draft fitted

no

No. and Description of Boilers

one single ended cylindrical

Working Pressure

180 lb

Tested by hydraulic pressure to

360 lb

Date of test

20.3.05

Can each boiler be worked separately

Yes

each boiler

2 spring

Area of fire grate in each boiler

62 sq ft

No. and Description of safety valves to

each boiler

2 of 1 1/2" &amp; 1 of 1" each

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

18"

Mean dia. of boilers

18 7/8"

Length

10' 6"

Material of shell plates

steel

Thickness

1 3/4"

Range of tensile strength

42 1/2/32

Are they welded or flanged

no

Descrip. of riveting: cir. seams

d.r. lap

long. seams

L.V. double

Diameter of rivet holes in long. seams

1 1/2"

Pitch of rivets

8 7/8"

Lap of plates or width of butt straps

18"

Per centages of strength of longitudinal joint

rivets 86.59

plate 85.55

Size of compensating ring

of 1 3/16"

No. and Description of Furnaces in each boiler

3 - Dighton

Material

Steel

Outside diameter

45 1/4"

Length of plain part

top 1'

Thickness of plates

crown 1 1/2"

Description of longitudinal joint

weld

No. of strengthening rings

Yes

Working pressure of furnace by the rules

180 lb

Combustion chamber plates: Material

S

Thickness: Sides

3/4"

Back

2 3/32"

Top

3/4"

Pitch of stays to ditto: Sides

1 7/8" x 8 1/2"

Back

1 1/2" x 9 1/2"

Top

1 1/8" x 8 1/2"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

180 lb

Material of stays

steel

Diameter at smallest part

2 1/4"

Area supported by each stay

1 1/4 sq ft

Working pressure by rules

191 lb

End plates in steam space:

Material of stays

steel

Material

steel

Thickness

1 1/2"

Pitch of stays

22" x 2 1/4"

How are stays secured

d.r. washers

Working pressure by rules

182 lb

Diameter at smallest part

8 1/4"

Area supported by each stay

46.75 sq ft

Working pressure by rules

181 lb

Material of Front plates at bottom

steel

Thickness

1 3/4"

Material of Lower back plate

steel

Thickness

7/8"

Greatest pitch of stays

14 1/4" x 9 1/2"

Working pressure of plate by rules

180 lb

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/2"

Material of tube plates

steel

Thickness: Front

1 3/16"

Back

1 3/16"

Mean pitch of stays

9" x 9"

Pitch across wide water spaces

14 1/2"

Working pressures by rules

215.7 lb

Girders to Chamber tops: Material

steel

Depth and

thickness of girder at centre

8" x 2"

Length as per rule

26.5"

Distance apart

11 7/8"

Number and pitch of Stays in each

2 - 8 1/2"

Working pressure by rules

187 lb

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

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

WAB - 0117



## DONKEY BOILER—

No. *One* Description *Blake Improved Patent*Made at *Middlebro'* By whom made *Wm Richardson Westgarth & Co* When made *1905* Where fixed *In stockhold*Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *3436* Fire grate area *21.5* Description of safety valves *spring*No. of safety valves *2* Area of each *3.96* Pressure to which they are adjusted *100 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *no*Dia. of donkey boiler *6' 6"* Length *15' 0"* Material of shell plates *steel* Thickness *1/2"* Range of tensile strength *27/32* Descrip. of riveting long. seams *d. r. lap*Dia. of rivet holes *15/16"* Whether punched or drilled *drilled* Pitch of rivets *3"*Lap of plating *4 5/8"* Per centage of strength of joint *71.2* Rivets *68.75* Plates Thickness of shell crown plates *1/2"* Radius of do. *3' 3"* No. of Stays to do. *—*Dia. of stays. *✓* Diameter of furnace Top *3' 3"* Bottom *5' 2"* Length of furnace *4' 1"* Thickness of furnace plates *5/8"* Description of joint *S. r. lap*Thickness of furnace crown plates *Top 1/2"* Stays by *dished 3' 9" radius + funnel* Working pressure of shell by rules *101.8 lbs*Working pressure of furnace by rules *111 lbs* Diameter of uptake *2 1/2"* Thickness of uptake plates *Top 1"* Pitch of tubes *Back 1 1/8"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *2 top end, 2 bottom end, 2 main bearing & 1 set-coupling bolts*  
*1 set feed and bilge pump Valves, Main & donkey feed check Valves, 1 set Valves for Feed*  
*and Ballast donkeys, 1 propeller, bolts & nuts assorted & iron of sizes*

The foregoing is a correct description,

NORTH EASTERN MARINE ENGINEERING CO. LTD.

Manufacturer.

*Walter Beattie & Co*

Dates of Survey while building  
 During progress of work in shops— *1905— Jan'y; 20, 23, 25, 31, Feb'y; 1, 3, 6, 8, 13, 14, 17, 21, 24, 27, 28, Mar; 3, 6, 7, 8, 9, 15, 17,*  
 During erection on board vessel— *20, 22, 23, 28, 30, 31, Apr; 17, May, 2, 8, 19, 22, 27, June 6,*  
 Total No. of visits *35.*

Is the approved plan of main boiler forwarded herewith

*Yes*

" donkey " " "

*No.*

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

*The Machinery for this vessel*  
*has been constructed under special survey the workmanship &*  
*materials used are both of good quality, the main steam pipes*  
*have been tested to twice the working pressure & proved satisfactory*  
*under test, the Engines have been tried under steam ahead & astern*  
*and worked satisfactorily*

*I beg to recommend that this vessel*  
*in my opinion is eligible to have the record **L.M.C. 6.05***  
*in the Register Book*

*It is submitted that*  
*this vessel is eligible for*  
**THE RECORD L.M.C. 6.05.**

*Wm Richardson*  
*17.6.05*

The amount of Entry Fee... £ 2 : : :  
 Special ... £ 21 : 15 : :  
 Donkey Boiler Fee ... £ : : :  
 Travelling Expenses (if any) £ : : :  
 When applied for, *16.6.05*  
 When received, *22/6/05*

*R. W. Coomber.*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

TUES. 20 JUN 1905

Assigned

*+ L.M.C. 6.03-*MACHINERY CERTIFICATE  
WRITTEN

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Foundation