

## REPORT ON BOILERS.

No. 17043

Received at London Office

Date of writing Report 12. 12. 1927 When handed in at Local Office

192

Port of Rotterdam

No. in  
Reg. Book.

Survey held at Hendrik Ida Embacht

Date, First Survey 20. 9. 27

Last Survey 9. 12. 1927

on the Steel Screw Tug "LADY ELIZABETH"

(Number of Visits 5)

Tons { Gross  
Net

Master Built at H. J. Embacht By whom built. Yonker & Hans Yard No. 184 When built 1927  
Engines made at Dordrecht By whom made Machfab. Crootun Engine No. 1 When made 1927  
Boilers made at Lubbeek By whom made H. Koch Boiler No. 1 When made 1927.  
Nominal Horse Power 79 Owners South African Harbour Administration Port belonging to Port Elizabeth

## MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

(Letter for Record S ✓)

Total Heating Surface of Boilers

1560 sq. ft. 145 sq. ft. ✓

Is forced draught fitted No ✓

Coal or Oil fired Coal ✓

No. and Description of Boilers

1 Single ended horizontal Marine Boiler ✓

Working Pressure 185 lb. 13.5 atm. ✓

Tested by hydraulic pressure to

Date of test

No. of Certificate

Can each boiler be worked separately

Area of Firegrate in each Boiler

3,969 sq. ft. ✓

No. and Description of safety valves to each boiler

2 Spring loaded ✓

Area of each set of valves per boiler

per Rule

Pressure to which they are adjusted

13.5 atm. Are they fitted with easing gear

Yes ✓

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

No Donkey Boiler ✓

Smallest distance between boilers or uptakes and bunkers or woodwork

3" ✓

Is oil fuel carried in the double bottom under boilers

No ✓

Smallest distance between shell of boiler and tank top plating

No tank ✓

Is the bottom of the boiler insulated

Yes ✓

Largest internal dia. of boilers

3800 mm

Length

3320 mm

Shell plates: Material

J. M. Heel

Tensile strength

48-54 kg. ✓

Thickness

24 mm ✓

Are the shell plates welded or flanged

No ✓

Description of riveting: circ. seams

end lap 2 x riv. ✓

long. seams

Double butt strap 4 x riv. ✓

Diameter of rivet holes in

circ. seams

30 mm ✓

Pitch of rivets

104 mm ✓

Percentage of strength of circ. end seams

plate 69.8% ✓

rivets 44.6% ✓

Percentage of strength of circ. intermediate seam

plate 69.8% ✓

rivets 66.9% ✓

Percentage of strength of longitudinal joint

plate 91.1% ✓

rivets 110% ✓

combined 95.6% &amp; 118.5% ✓

Working pressure of shell by Rules

13.42 kg. ✓

Thickness of butt straps

outer 20 mm ✓

inner 20 mm ✓

No. and Description of Furnaces in each Boiler

2 Morrison patent ✓

Material

J. M. Heel ✓

Tensile strength

34-41 kg. ✓

Smallest outside diameter

1130 mm ✓

Length of plain part

top

Thickness of plates

crown

15 mm ✓

Description of longitudinal joint

Welded ✓

Dimensions of stiffening rings on furnace or c.c. bottom

c

Working pressure of furnace by Rules

13 kg. ✓

End plates in steam space: Material

J. M. Heel ✓

Tensile strength

34-41 kg. ✓

Thickness

22 1/2 mm ✓

Pitch of stays

360 mm x 400 ✓

How are stays secured

Secured in plates with double nuts washers ✓

Working pressure by Rules

15.4 kg. ✓

Tube plates: Material

front J. M. Heel ✓

back J. M. Heel ✓

Tensile strength

34-41 kg. ✓

Thickness

22 1/2 mm ✓

20 mm ✓

Mean pitch of stay tubes in nests

286 mm ✓

Pitch across wide water spaces

115 x 380 mm ✓

Working pressure

front 16 kg. ✓

back

Girders to combustion chamber tops: Material

J. M. Heel ✓

Tensile strength

40-54 kg. ✓

Depth and thickness of girder

at centre 210 x 226 mm ✓

Length as per Rule

720 mm ✓

Distance apart

180 mm ✓

No. and pitch of stays

in each 3 at 185 mm ✓

Working pressure by Rules

18.3 ✓

Combustion chamber plates: Material

J. M. Heel ✓

Tensile strength

34-41 kg. ✓

Thickness: Sides

16 mm ✓

Pitch of stays to ditto: Sides

170 x 185 mm ✓

Back

185 mm ✓

Top

185 x 180 mm ✓

Are stays fitted with nuts or riveted over

Fitted with nuts ✓

Working pressure by Rules

14.4 kg. ✓

Front plate at bottom: Material

J. M. Heel ✓

Tensile strength

34-41 kg. ✓

Thickness

24 mm ✓

Lower back plate: Material

J. M. Heel ✓

Tensile strength

34-41 kg. ✓

Thickness

10 1/2 mm ✓

Pitch of stays at wide water space

320 mm ✓

Working Pressure

14.2 kg. ✓

Main stays: Material

J. M. Heel ✓

Tensile strength

44-50 kg. ✓

Diameter

At body of stay, 64 mm ✓

Over threads 68

No. of threads per inch

9 ✓

Area supported by each stay

149,000 mm<sup>2</sup> ✓

Working pressure by Rules

15.1 kg. ✓

Screw stays: Material

J. M. Heel ✓

Tensile strength

26-30 tons ✓

Diameter

At turned off part, 30

Over threads 30

No. of threads per inch

9 ✓

Area supported by each stay

34,225



Working pressure by Rules *16.5 kg* Are the stays drilled at the outer ends *OK* Margin stays: Diameter { At turned off part, *46 mm*  
or  
Over threads }  
No. of threads per inch *9* Area supported by each stay *46712 mm<sup>2</sup>* Working pressure by Rules *19.1*  
Tubes: Material *Steel* External diameter { Plain *3 1/2"* Thickness { *4 mm* No. of threads per inch *9*  
Stay *3 1/4"* }  
Pitch of tubes *115 x 110 mm* Working pressure by Rules *15 kg* Manhole compensation: Size of opening in  
shell plate *300 x 400* Section of compensating ring *760 x 844 x 24 mm* No. of rivets and diameter of rivet holes *34 to 50 mm*  
Outer row rivet pitch at ends *220 mm* Depth of flange if manhole flanged *✓* Steam Dome: Material *✓*  
Tensile strength *2* Thickness of shell *✓* Description of longitudinal joint *✓*  
Diameter of rivet holes *✓* Pitch of rivets *✓* Percentage of strength of joint { Plate *✓*  
Rivets *✓* }  
Internal diameter *✓* Working pressure by Rules *✓* Thickness of crown *✓* No. and diameter of  
stays *✓* Inner radius of crown *✓* Working pressure by Rules *✓*  
How connected to shell *✓* Size of doubling plate under dome *✓* Diameter of rivet holes and pitch  
of rivets in outer row in dome connection to shell *✓*  
Type of Superheater *✓* Manufacturers of { Tubes *✓*  
Steel castings *✓* }  
Number of elements *✓* Material of tubes *✓* Internal diameter and thickness of tubes *✓*  
Material of headers *✓* Tensile strength *✓* Thickness *✓* Can the superheater be shut off and  
the boiler be worked separately *✓* Is a safety valve fitted to every part of the superheater which can be shut off from the boiler *✓*  
Area of each safety valve *✓* Are the safety valves fitted with easing gear *✓* Working pressure as per  
Rules *✓* Pressure to which the safety valves are adjusted *✓* Hydraulic test pressure:  
tubes *✓* castings *✓* and after assembly in place *✓* Are drain cocks or valves fitted  
to free the superheater from water where necessary *✓*  
Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with *✓*

The foregoing is a correct description,

Manufacturer.

Dates { During progress of  
of Survey { work in shops - - ) *✓*  
while { During erection on  
building { board vessel - - - ) *✓*

Are the approved plans of boiler and superheater forwarded herewith *Yes*  
(If not state date of approval.)  
Total No. of visits

# GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

*This boiler has been examined internally and externally, its mountings and safety valves, scamlings verified with the approved plan and all found in order.*

Survey Fee ... .. £ : : } When applied for, 192  
Travelling Expenses (if any) £ : : } When received, 192

Committee's Minute

TUES. 20 DEC 1927

Assigned

*See P. 1. attached*

*E. E. O'Brien*  
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation